

Factors Associated With The Completeness Of Basic Immunization In Children In The Working Area Of Teluk Lubuk Public Health Center

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ABSTRACT

Background: Complete basic immunization is an important preventive effort to protect children from various infectious diseases. However, the coverage of basic immunization in several regions of Indonesia has not yet reached the national target, including in the working area of Teluk Lubuk Public Health Center. Various factors such as maternal knowledge, attitude, and occupation are suspected to be associated with the completeness of basic immunization. Therefore, this study aims to determine the factors associated with the completeness of basic immunization in children.

Objective: To identify the factors associated with the completeness of basic immunization in children in the working area of Teluk Lubuk Public Health Center in 2025. **Methods:** This study employed a quantitative design with a cross-sectional approach. The study was conducted in February 2025. The population consisted of all mothers with children aged 12–24 months in the working area of Teluk Lubuk Public Health Center. A total of 97 respondents were selected using total sampling technique. Data were analyzed using the chi-square test and odds ratio (OR). **Results:** A total of 54.6% of children received complete basic immunization. There was a significant relationship between maternal knowledge ($p=0.000$; $OR=3.628$) and maternal attitude ($p=0.045$; $OR=2.522$) with the completeness of basic immunization. However, maternal occupation was not significantly associated with immunization completeness ($p=0.528$; $OR=0.710$). **Conclusion:** Maternal knowledge and attitude are significantly associated with the completeness of basic immunization in children, while maternal occupation is not. Efforts to enhance health education and promotion by health workers are necessary to increase maternal awareness of the importance of basic immunization.

ABSTRAK

Latar Belakang: Imunisasi dasar lengkap merupakan upaya preventif penting untuk mencegah berbagai penyakit menular pada anak. Namun, cakupan imunisasi dasar di beberapa wilayah Indonesia masih belum mencapai target nasional, termasuk di wilayah kerja Puskesmas Teluk Lubuk. Berbagai faktor seperti pengetahuan, sikap, dan pekerjaan ibu diduga memiliki hubungan dengan kelengkapan imunisasi dasar. Oleh karena itu, penting dilakukan penelitian untuk mengetahui faktor-faktor yang berhubungan dengan kelengkapan imunisasi dasar pada anak. **Tujuan Penelitian:** Untuk mengetahui faktor-faktor yang berhubungan dengan kelengkapan imunisasi dasar pada anak di wilayah kerja Puskesmas Teluk Lubuk Tahun 2025. **Metode Penelitian:** Penelitian ini menggunakan desain kuantitatif dengan pendekatan cross sectional. Penelitian dilakukan pada bulan Februari 2025. Populasi dalam penelitian ini adalah seluruh ibu yang memiliki anak usia 12–24 bulan di wilayah kerja Puskesmas Teluk Lubuk. Jumlah sampel sebanyak 97 responden yang dipilih menggunakan teknik total sampling. Data dianalisis menggunakan uji chi-square dan odds ratio. **Hasil Penelitian:** Sebanyak 54,6% anak telah menerima imunisasi dasar lengkap. Terdapat hubungan signifikan antara pengetahuan ibu ($p=0,000$; $OR=3,628$) dan sikap ibu ($p=0,045$; $OR=2,522$) dengan kelengkapan imunisasi dasar. Namun, tidak terdapat hubungan yang signifikan antara pekerjaan ibu dengan kelengkapan imunisasi dasar ($p=0,528$; $OR=0,710$). **Kesimpulan:** Pengetahuan dan sikap ibu memiliki hubungan yang signifikan dengan kelengkapan imunisasi dasar pada anak, sementara pekerjaan ibu tidak berhubungan secara signifikan. Diperlukan upaya peningkatan edukasi dan promosi kesehatan oleh petugas puskesmas untuk meningkatkan kesadaran ibu tentang pentingnya imunisasi dasar.

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INTRODUCTION

Basic immunization is one of the most effective public health interventions in preventing infectious diseases such as measles, diphtheria, pertussis, hepatitis B, and tuberculosis (Nurhikmah et al., 2021). Immunization is always associated with morbidity and mortality rates in infants. The importance of complete basic immunization must be focused on infants because their immune systems are still weak and susceptible to diseases (Maemunah et al., 2023).

Based on data from the World Health Organization (WHO) in 2022, the number of children who did not receive immunization, referred to as zero dose, at the global level was 14.3 million children (WHO, 2024). This data shows a decline from 2021, which recorded 18.1 million children, and this condition has nearly returned to the pre-pandemic situation in 2019 (12.9 million children) (Ministry of Health, 2024).

Although basic immunization has become a national priority program, many children still do not receive complete immunization. According to data from the Ministry of Health of the Republic of Indonesia (2023), approximately 15% of children in Indonesia have not received complete basic immunization. This has the potential to increase cases of preventable infectious diseases. Meanwhile, in Indonesia, the number of children who have not been fully immunized from 2018 to 2023 was 1,879,820 children. In 2024, it was reported that 2.8 million children had not received or had not completed immunization in the period 2021–2023. These children were spread across 309 districts/cities in 38 provinces (Ministry of Health, 2024).

Data from the Ministry of Health of the Republic of Indonesia showed that in 2023, DPT immunization coverage was 3,826,769 children (88%), polio immunization was 3,114,519 children (71.6%), measles immunization was 4,149,480 children (95.4%), and the coverage of children receiving complete basic immunization was 3,941,334 children (90.6%) (Ministry of Health RI, 2024). Meanwhile, the coverage of basic immunization for children in 2023 in South Sumatra Province showed DPT immunization at 150,617 children (95.7%), polio immunization at 143,323 children (91%), measles immunization at 168,416 children (107%), and complete basic immunization coverage at 154,929 children (98.4%) (Ministry of Health RI, 2024).

Various previous studies have identified several factors contributing to the completeness of basic immunization in children. Socio-economic factors, such as low family income, lack of parental education, and irregular employment, are often associated with low immunization coverage (Dzielska et al., 2025). In addition, parental knowledge and attitudes toward immunization also play an important role. Studies show that parents with low levels of education tend to have less understanding of the benefits of immunization, while misinformation and myths circulating in the community also hinder immunization participation (Pangandaman et al., 2025).

Beyond social and economic factors, access to health services is also a major challenge in improving immunization coverage. Research shows that children living in remote areas or far from health facilities are more likely to not receive complete immunization (Darnah et al., 2025). Furthermore, the limited availability of health workers and vaccine supplies in certain areas also contributes to the low coverage of basic immunization (Rahayu et al., 2025). Cultural factors and religious beliefs also influence parents' decisions to immunize their children. Some community groups hold skeptical views toward immunization due to certain beliefs or traditions that avoid medical interventions (Kılınc & Isik, 2025).

Research conducted by Novika et al. (2025) showed that the level of maternal education was significantly associated with the immunization status of children. Another study by Anggreni et al. (2025) revealed that economic factors, access to health services, and maternal attitudes toward immunization also played an important role in determining the completeness of basic immunization. These findings were further strengthened by studies indicating that mothers with low levels of knowledge tended to have children with incomplete immunization status (Thaha et al., 2025).

Maternal knowledge regarding the benefits and risks of immunization is a crucial factor in determining a mother's decision to bring her child for complete basic immunization (Akri & Rahmawati, 2024). In addition, maternal attitudes toward immunization also have a significant influence. A study by Natalia Br. (2024) found that mothers with positive attitudes toward

immunization were more likely to complete their children's immunization compared to mothers with negative or hesitant attitudes toward immunization.

Maternal occupation is also an important factor in the completeness of children's immunization. Research by Rahayu and Anggreni (2025) found that working mothers tended to have lower levels of children's immunization compared to non-working mothers, especially when they had limited time and access to health facilities.

Based on the various studies mentioned above, social, economic, and maternal knowledge factors play an important role in the completeness of basic immunization in children. However, to date, there has been limited research specifically examining these factors in the working area of Teluk Lubuk Public Health Center. Therefore, this research is very important to identify the factors associated with the completeness of basic immunization in this area, so that it can serve as a basis for the government and health workers to design more effective interventions.

From the existing literature, there are still different understandings regarding immunization in the community, resulting in many infants and toddlers not receiving immunization services. Reasons given by parents include fear of fever, frequent illness, family not allowing it, immunization sites being far away, not knowing where to get immunized, and being busy. Therefore, immunization services must be improved at various levels of service units (Hasifah & Sholihah, 2022).

Children who do not receive complete basic immunization are associated with several maternal behavioral factors such as occupation, knowledge, and attitudes. Busy working mothers have less time to take care of their children, which may lead to forgetting the immunization schedule. Knowledge factors include the low level of information obtained by mothers about immunization. Attitude factors include non-compliance with immunization schedules, where a mother who has a positive attitude will attend immunization activities regularly (Maemunah et al., 2023).

Based on the research by Nurdiana (2022) entitled the relationship between maternal knowledge and attitudes with the completeness of basic immunization, the results showed that there was a relationship between maternal knowledge and attitudes with the completeness of basic immunization in infants at Tamalanrea Jaya Public Health Center, Makassar City.

Based on the research by Maimunah (2023) on the completeness of basic immunization in infants at Posyandu Dewi Sartika, Malang City, the results showed that maternal occupation, knowledge, attitudes, education, experience, health information, and age simultaneously influenced the completeness of basic immunization in infants, and the most dominant factor was knowledge.

Based on data from the Muara Enim District Health Office, basic immunization coverage in 2023 only reached 78%, which was still below the national target of 90%. This indicates that there are still children who have not received complete immunization protection. One of the public health centers in Muara Enim Regency, Teluk Lubuk Public Health Center, had not reached the target for complete basic immunization in children in 2024. The percentage of complete basic immunization at Teluk Lubuk Public Health Center was: HB0 85.2%, BCG 82.5%, DPT-HB-Hib1 82.1%, DPT-HB-Hib2 80.9%, DPT-HB-Hib3 81.8%, Polio1 82.5%, Polio2 82.1%, Polio3 80.2%, Polio4 81.7%, Measles 85.9%, DPT Booster 80.1%, Measles Booster 80.1% (Teluk Lubuk Public Health Center, 2025).

Based on the background above, the researchers were interested in conducting a study entitled "Factors Associated with the Completeness of Basic Immunization in Children in the Working Area of Teluk Lubuk Public Health Center in 2025."

METHOD

Types of Research

This study used an analytical survey method with a *cross-sectional* study design.

Population and Sample

To determine the sample size, the researchers used *purposive sampling* technique, where the researchers had already identified the characteristics of the population beforehand and conducted a preliminary study. The sample was selected based on inclusion and exclusion criteria. Inclusion criteria included mothers with children aged 18–24 months registered in the working area of Teluk

Lubuk Public Health Center, mothers or guardians willing to be respondents and provide information regarding the child's immunization status, mothers or guardians who could communicate well, and those who had a Maternal and Child Health (MCH) book or immunization card recording the child's immunization status up to 18 months of age. Exclusion criteria included children with congenital diseases or certain medical conditions that prevented them from receiving immunization on schedule, and families who had recently moved to the study area less than six months ago. The sample in this study was mothers with children aged 18–24 months in the working area of the Public Health Center. The minimum sample size was 79 persons. This study added a minimum of 20% to avoid dropout data, resulting in a sample of 97 persons.

Research Location and Time

This study was conducted from March to April 2025 in the working area of Teluk Lubuk Public Health Center, Prabumulih Regency, South Sumatra Province.

Data Collection

Data collection in this study used primary data sources by distributing questionnaires to respondents containing questions about knowledge, attitudes, maternal occupation, and the completeness of basic immunization in children. The data collection instrument used in this study was a questionnaire to collect data on maternal knowledge, maternal attitudes, maternal occupation, and the completeness of basic immunization in children.

Data Processing and Analysis

Independent and dependent variables were analyzed using the *chi-square* test (χ^2) with a significance level (α) = 0.05.

RESEARCH RESULTS

Table 1. Frequency Distribution of Basic Immunization Completeness in Children in the Working Area of Teluk Lubuk Public Health Center, 2025

Immunization Completeness	n	%
Complete	53	54.6
Incomplete	44	45.4
Total	97	100.0

Based on the table above, out of 97 respondents, 53 children (54.6%) had received complete basic immunization, while 44 children (45.4%) had not received complete basic immunization.

Table 2. Frequency Distribution of Maternal Knowledge about Basic Immunization in Children in the Working Area of Teluk Lubuk Public Health Center, 2025

Maternal Knowledge	n	%
Good (>76%)	32	33.0
Fair (56–75%)	33	34.0
Poor (<55%)	32	33.0
Total	97	100.0

Based on the table above, out of 97 respondents, 33 mothers (34.0%) had fair knowledge, 32 mothers (33.0%) had good knowledge, and 32 mothers (33.0%) had poor knowledge regarding basic immunization in children.

Table 3. Frequency Distribution of Maternal Attitudes in the Working Area of Teluk Lubuk Public Health Center, 2025

Maternal Attitude	n	%
Positive	45	46.4
Negative	54	53.6
Total	97	100.0

Based on the table above, out of 97 respondents, 45 mothers (46.4%) had positive attitudes toward basic immunization, while 54 mothers (53.6%) had negative attitudes.

Table 4. Frequency Distribution of Maternal Occupation in the Working Area of Teluk Lubuk Public Health Center, 2025

Maternal Occupation	n	%
Housewife	44	45.4
Employed	53	54.6
Total	97	100.0

Based on the table above, out of 97 respondents, 44 mothers (45.4%) were not employed or were housewives, while 53 mothers (54.6%) had employment outside the home.

Table 5. Relationship between Maternal Knowledge and the Completeness of Basic Immunization in Children in the Working Area of Teluk Lubuk Public Health Center, 2025

Knowledge	Complete		Incomplete		Total		P value / OR (CI 95%)
	n	%	n	%	n	%	
Good	26	81.3	6	18.8	32	100	0.000 /
Fair	19	57.6	14	42.4	33	100	3.628
Poor	8	25.0	24	75.0	32	100	(1.994–6.000)

Based on the table above, out of 32 mothers with good knowledge, 26 children (81.3%) had received complete basic immunization. In the group with fair knowledge, 19 children (57.6%) received complete immunization, while in the group with poor knowledge, only 8 children (25.0%) had complete immunization. Statistical test results showed a *p-value* of 0.000, indicating a significant relationship between the level of maternal knowledge and the completeness of basic immunization in children in the working area of Teluk Lubuk Public Health Center in 2025. The *odds ratio* (OR) of 3.628 with a 95% confidence interval (1.994–6.000) indicates that mothers with good knowledge were 3.628 times more likely to complete their children's basic immunization compared to mothers with poor knowledge.

Table 6. Relationship between Maternal Attitude and the Completeness of Basic Immunization in Children in the Working Area of Teluk Lubuk Public Health Center, 2025

Maternal Attitude	Complete		Incomplete		Total		P value / OR (CI 95%)
	n	%	n	%	n	%	
Positive	30	66.7	15	33.3	45	100	0.045 /
Negative	23	44.2	29	55.8	52	100	2.522
							(1.311–5.765)

Based on the table above, out of 45 mothers with positive attitudes toward immunization, 30 children (66.7%) received complete basic immunization. Meanwhile, out of 52 mothers with negative attitudes, only 23 children (44.2%) had complete immunization. Statistical test results showed a *p-value* of 0.045, indicating a significant relationship between maternal attitude and the completeness of basic immunization. The *odds ratio (OR)* of 2.522 with a 95% confidence interval (1.311–5.765) indicates that mothers with positive attitudes were 2.5 times more likely to complete their children's basic immunization compared to mothers with negative attitudes.

Table 7. Relationship between Maternal Occupation and the Completeness of Basic Immunization in Children in the Working Area of Teluk Lubuk Public Health Center, 2025

Maternal Occupation	Complete		Incomplete		Total		P value / OR (CI 95%)
	n	%	n	%	n	%	
Housewife	22	50.0	22	50.0	44	100	0.528 /
Employed	31	58.5	22	41.5	53	100	0.710 (0.317–1.587)

Based on the table above, out of 44 non-working mothers (housewives), 22 children (50.0%) had received complete basic immunization. Meanwhile, out of 53 working mothers, 31 children (58.5%) received complete immunization. Statistical test results showed a *p-value* of 0.528, indicating no significant relationship between maternal occupation and the completeness of basic immunization in children. The *odds ratio (OR)* of 0.710 with a 95% confidence interval (0.317–1.587) indicates that working mothers had a slightly higher tendency to complete immunization; however, this difference was not statistically significant.

DISCUSSION

The analysis results showed a significant relationship between the level of maternal knowledge and the completeness of children's immunization (P value < 0.05). Maternal knowledge is a crucial aspect in decision-making related to children's health, including the fulfillment of basic immunization. The higher the maternal knowledge, the greater the likelihood that the child would receive complete immunization. This demonstrates that a mother's ability to understand the benefits of immunization greatly influences the preventive behavior adopted (Martiningsih, 2022).

Research by Handayani et al. (2024) supports these findings, showing that mothers with good knowledge had higher levels of immunization compliance. They tended to actively bring their children to integrated health posts (posyandu) or public health centers and were able to recognize the recommended immunization schedule. This knowledge was also closely related to mothers' ability to access and understand health information.

A study by Sapuroh and Sholihah (2023) found a significant correlation between maternal knowledge and the completeness of basic immunization in infants ($p=0.000$). Thus, a mother's understanding of the benefits of immunization directly influences her preventive health behavior regarding her child's immunization. A study by Wea et al. (2022) showed a significant relationship between maternal knowledge and children's immunization status, indicating that higher maternal knowledge leads to increased motivation for immunization, thereby enhancing preventive health behavior and ensuring children receive complete immunization.

Another aspect is the involvement of health workers. Training provided to midwives and health cadres significantly improved their proficiency with the MCH Book, enabling them to offer better counseling and information. Clear and tailored communication enhances mothers' understanding, facilitating effective health interventions for pregnant and postpartum mothers (Indrasari, 2024).

The researchers' assumption in this study is that knowledge is not static but can be improved through education and experience. Therefore, interventions designed to continuously improve

maternal knowledge are very important in supporting the complete basic immunization program at the community level.

In this study, it was found that there was a significant relationship between maternal attitude and the completeness of basic immunization in children, meaning that mothers with positive attitudes were more likely to complete their children's immunization (P value < 0.05). Maternal attitude toward basic immunization is an important component in determining the success of immunization coverage in the community. Attitude reflects a mother's psychological response to information received about immunization (Martiningsih, 2022).

These findings are consistent with the results of Handayani et al. (2024), who stated that maternal attitude significantly influenced compliance with complete basic immunization. Those with supportive attitudes tended to be more active in coming to integrated health posts or public health centers and rarely delayed their children's immunization.

Meanwhile, Ramadhan (2024) also found that maternal attitude was one of the most dominant factors in achieving complete basic immunization, alongside knowledge and family support. In his research at Suliki Public Health Center, mothers who showed negative attitudes generally feared the side effects of vaccines or lacked trust in health workers.

According to research by Sartika et al. (2023), maternal attitude significantly influenced immunization completeness. Effective communication and education can improve mothers' understanding of the benefits of immunization, fostering positive attitudes that encourage voluntary compliance with immunization schedules without coercion, ultimately improving children's health outcomes.

The researchers' assumption in this study is that maternal attitudes can be changed or shaped through intensive interpersonal communication approaches, especially by health workers trusted by the community. If mothers feel valued and are provided with appropriate information, their attitudes toward immunization tend to change in a positive direction.

Maternal occupation is often associated with the ability to access health services and the time available to care for children's needs, including immunization. However, based on the analysis results in this study, there was no significant relationship between maternal employment status and the completeness of basic immunization in children. This means that both working mothers and housewives had relatively equal opportunities to complete their children's immunization.

In theory (Rachmawati, 2019), employment can influence a person's health behavior. Working mothers may have better access to health information and more stable income, making them potentially more capable of meeting their children's health needs, including immunization. On the other hand, housewives have more free time to attend integrated health posts or health facilities, which also supports immunization implementation.

Research by Sari (2024) showed that although working mothers had income, they also faced barriers such as limited time and fatigue, which could lead to negligence in following the immunization schedule. This explains why employment status does not always correlate directly with basic immunization compliance.

According to Utomo (2024), in his research at Mungkid Public Health Center, maternal employment status was not the only dominant factor influencing immunization completeness. Knowledge, personal motivation, and environmental support were more important. This indicates that the role of employment tends to be indirect in influencing immunization decisions.

Furthermore, research by Meliyanti E. (2025) reinforces that effective interventions from health workers have a significant impact on immunization compliance, regardless of maternal employment status. Working mothers can still demonstrate high compliance if they receive regular education and support from midwives or health cadres.

The researchers' assumption in this study is that mothers' decisions to complete basic immunization are more influenced by awareness, attitudes, and access to information rather than

employment status alone. Therefore, even though working mothers have limited time, they can still be compliant with immunization if they have sufficient commitment and information.

Midwives, as the closest health workers to the community, need to understand that all mothers, whether working or not, still require appropriate approaches. Immunization education should not only focus on housewives but should also be tailored to the time and needs of working mothers, for example through evening counseling or digital media (da Silva Filho et al., 2024).

Thus, the absence of a significant relationship between maternal occupation and the completeness of basic immunization in this study indicates that other factors such as knowledge, attitudes, and family support are more determinant. Therefore, comprehensive and inclusive intervention strategies are still needed so that all mothers, regardless of employment status, are able to fulfill their children's immunization schedules completely.

CONCLUSIONS AND SUGGESTIONS

There is a significant relationship between the level of knowledge and maternal attitude with the completeness of basic immunization in children, and there is no significant relationship between maternal occupation and the completeness of basic immunization in children in the working area of Teluk Lubuk Public Health Center in 2025.

Efforts to enhance health education and promotion by public health center workers are needed to increase maternal awareness of the importance of basic immunization. For Teluk Lubuk Public Health Center, it is expected that more intensive outreach regarding immunization will be conducted, especially for mothers with infants in the working area. For future researchers, it is expected to develop similar studies with broader variables and larger samples.

Author's Contribution Statement:

Rusmita: Investigation, Data Curation, Writing – Original Draft. **Sari Wahyuni:** Conceptualization, Methodology, Supervision, Writing – Review & Editing. **Wilma:** Methodology, Validation, Writing – Review & Editing. **Asri Novianti:** Formal Analysis, Visualization. **Miskiyah:** Resources, Investigation. **Rohaya:** Project Administration, Resources.

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