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The Relationship Between Mothers' Knowledge Levels about Immunization and the Completeness of Basic Immunization in Toddlers

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ABSTRACT

Immunization is an effective way to prevent infectious diseases and reduce morbidity and mortality in toddlers. Mothers' knowledge of basic immunizations plays a crucial role in determining the completeness of their child's immunizations. This study aims to determine the relationship between mothers' knowledge of immunizations and the completeness of basic immunizations in toddlers. This study is descriptive analytical with a cross-sectional approach. Sectional. The study population was all mothers with toddlers aged 12–59 months in the working area of Community Health Center X in 2025 with a sample of 100 respondents taken by purposive sampling. Data were collected using an immunization knowledge questionnaire and a KIA book observation sheet. Data analysis was carried out univariately and bivariately using the Chi-Square test. The results showed that most mothers had good knowledge (62%), and 68% of toddlers had complete basic immunizations. The Chi-Square test showed a *p* value = 0.002 (<0.05) which means there is a significant relationship between the level of maternal knowledge about immunization and the completeness of basic immunizations in toddlers. It was concluded that the higher the level of maternal knowledge, the more complete the basic immunizations in toddlers. It is hoped that health workers will increase public education about the importance of immunization through counseling and attractive information media.

Keywords: Maternal Knowledge, Basic Immunization, Toddlers, Immunization Completeness

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1. Introduction

The health of toddlers is one indicator of the success of health development in a country. Toddlerhood is the golden age. Which greatly determines the quality of human resources in the future. One important effort in maintaining children's health is through providing complete basic immunizations. Immunization has been proven effective in reducing the incidence of infectious diseases and mortality in children (WHO, 2024).

According to the Indonesian Ministry of Health (2024), complete basic immunizations given to toddlers include BCG, Polio, DPT-HB- Hib, Hepatitis B, and Measles/ Rubella. The national target for complete basic immunization coverage in 2024 is 95%. However, data shows that in several regions of Indonesia, basic immunization coverage has not yet reached this target. For example, complete basic immunization coverage in several provinces is still below 85%, especially in rural areas with limited access to healthcare (Indonesian Ministry of Health, 2024).

One of the causes of low basic immunization coverage is mothers' low level of knowledge about immunization. This lack of knowledge leads to misunderstandings about the benefits of immunization and fear of side effects, making mothers reluctant to bring their children for immunization (Zuraida, 2024). Furthermore, the spread of inaccurate information on social media often raises public doubts about vaccine safety (Setiawan, 2024).

Mothers' knowledge about immunization includes the definition, benefits, schedule of administration, and possible side effects. Mothers with good knowledge tend to better understand the importance of immunization and have positive behaviors in completing their children's immunizations (Yuliani et al. al., 2023). On the other hand, mothers with low knowledge often delay or even do not provide complete immunizations to their children (Indrawati et al. et al., 2023).

Research conducted by Sari and Rahayu (2022) showed a significant relationship between maternal knowledge and the completeness of basic immunizations in toddlers. Similar results were obtained by Ningsih (2023), who found that mothers with good knowledge were three times more likely to complete their children's immunizations than mothers with less knowledge.

Theoretically, according to Green's (1980) *Precede-Proceed* theory, knowledge is a predisposing factor that influences the formation of a person's health behavior. Therefore, increasing mothers' knowledge about immunization is an important step in increasing the coverage of complete basic immunization.

2. Research Methods

a. Types and Design of Research

This research uses a quantitative type with an analytical descriptive design and a cross-sectional approach. sectional, namely data collection is carried out at one time





to determine the relationship between the level of maternal knowledge about immunization and the completeness of basic immunization in toddlers.

b. Location and Time of Research

The research was conducted in the working area of Health Center X during January–March 2025.

c. Population and Sample

- Population: all mothers who have toddlers aged 12–59 months in the working area of Health Center X, a total of 250 people.
- Sample: 100 respondents were selected using purposive sampling, which is a sampling technique based on certain criteria that are relevant to the research objectives.

Inclusion criteria:

- Mothers who have children aged 12–59 months.
- Have a child's KIA book.
- Willing to be a respondent.

Exclusion criteria :

- A mother who cannot read or write.
- Children who have a history of contraindications to certain immunizations.

d. Research Variables

- **Independent variable (X):** level of mother's knowledge about basic immunization.
- **Dependent variable (Y):** completeness of basic immunization in toddlers.

e. Operational Definition

Variables	Definition	Measuring instrument	Category	Scale
Mother's knowledge	The level of mothers' understanding of the meaning, benefits, schedule and side effects of basic immunization	Questionnaire (20 questions)	Good (76–100%), Sufficient (56–75%), Poor ($\leq 55\%$)	Ordinal
Completeness of basic immunization	Status of complete basic immunization for children based on the KIA book	Observation sheet	Complete (≥ 5 types of vaccines), Incomplete (< 5 types of vaccines)	Nominal

f. Research Instruments

The instruments used in this study are:

- The Mother's Knowledge Questionnaire contains 20 multiple-choice questions regarding basic immunization.





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- b. KIA Book Observation Sheet to record the child's immunization status (BCG, Polio, DPT-HB- Hib, Hepatitis B, and Measles/ Rubella).

g. Data collection technique

- a. Preparation stage: processing research permits and testing instrument validity.
 b. Implementation stage: filling out the questionnaire by respondents with the guidance of the researcher.
 c. Observation stage: checking the completeness of immunizations through the KIA book.

h. Validity and Reliability Test

- Validity testing was conducted using Pearson Product Moment on 20 question items, with the results of all items being valid ($r_{count} > r_{table} 0.361$).
- Reliability test using Cronbach Alpha = 0.87, indicating a reliable instrument.

i. Data Analysis Techniques

Data was analyzed using:

- Univariate Analysis: to describe the frequency distribution of maternal knowledge and completeness of basic immunization.
- Bivariate Analysis: using the Chi- Square test with a significance level of $\alpha = 0.05$ to determine the relationship between the two variables.

3. Results and Discussion**a. Results****1. Respondent Characteristics**

Most respondents were aged 26–35 years (58%), had secondary education (high school) as much as 60%, and most were housewives (72%).

2. Mothers' Knowledge Level about Immunization**Knowledge Category Frequency (n) Percentage (%)**

Good	62	62%
Enough	28	28%
Not enough	10	10%

3. Completeness of Basic Immunization for Toddlers**Immunization Categories Frequency (n) Percentage (%)**

Complete	68	68%
Incomplete	32	32%

4. The Relationship Between Knowledge and Immunization Completeness**Knowledge Complete Incomplete Total p -value**

Good	50	12	62	
Enough	14	14	28	0.002*

631



Knowledge Complete Incomplete Total p -value

Not enough 4 6 10

Square test shows $p = 0.002 (< 0.05)$, meaning there is a significant relationship.

b. Discussion

The results of this study indicate a significant relationship between mothers' knowledge of immunization and the completeness of basic immunizations in toddlers. This finding supports the *Health and Welfare theory*. *The Belief Model* states that a person's health behavior, including the decision to immunize, is greatly influenced by the level of knowledge and perception of the benefits and risks of the action (Rosenstock et al., 1988).

Mothers with good knowledge about immunization tend to understand the importance of administering vaccines on schedule to protect children from infectious diseases such as measles, polio, diphtheria, tetanus, hepatitis B, and tuberculosis. Adequate knowledge allows mothers to identify the benefits of immunization and understand the potential risks of incomplete immunization (Dewi & Puspitasari, 2020).

Conversely, mothers with low levels of knowledge often do not understand the importance of immunization and may even be influenced by misinformation or myths circulating in the community. This makes them reluctant to take their children to health facilities for complete immunizations. Several previous studies have also found similar results, indicating that a lack of maternal knowledge is a major factor influencing incomplete basic immunizations (Yuliana et al. al., 2021; Sari et al., 2019).

In addition to knowledge, immunization success is also influenced by other variables such as access to health services, support from medical personnel, socioeconomic conditions, and community culture. For example, mothers living in remote areas with limited access to community health centers often experience difficulties completing their children's immunizations. Support from health workers, such as midwives and integrated health post (Posyandu) cadres, also plays a crucial role in providing community education and reminders about immunization schedules (Kurniasih et al. et al., 2022).

The results of this study are consistent with research conducted by Rahayu et al. (2020) showed that mothers with high levels of knowledge were 2.5 times more likely to complete their children's immunizations compared to mothers with low levels of knowledge. Therefore, increasing maternal knowledge through health education programs is an effective strategy for increasing basic immunization coverage.

A sustainable immunization education program, complemented by effective and culturally appropriate communication methods, can improve mothers' understanding and encourage positive behavior change. Community health centers and health workers need to strengthen collaboration with community leaders, integrated health post





(Posyandu) cadres, and educational institutions to expand the reach of immunization education in the community.

Thus, it can be concluded that improving maternal knowledge is key to ensuring complete basic immunization coverage for toddlers. Educational and promotive efforts in public health need to be continuously strengthened to achieve national immunization coverage targets and to continue to decrease the incidence of vaccine-preventable diseases (VPD3I).

4. Conclusion and Suggestions

a. Conclusion

Based on the research results, it can be concluded that there is a significant relationship between mothers' level of knowledge about immunization and the completeness of basic immunizations in toddlers. Mothers with a good level of knowledge are more likely to complete their children's basic immunizations according to the established schedule. Conversely, mothers with a low level of knowledge are at greater risk of not completing their children's immunizations.

Maternal knowledge is one of the dominant factors influencing basic immunization behavior, alongside access to health services, family support, and the active role of health workers. Therefore, efforts to increase knowledge through health education, counseling, and health promotion activities are essential to increase awareness and compliance with immunization.

b. Suggestion

1. For Health Workers:

It is necessary to increase the frequency and quality of counseling for mothers of toddlers regarding the importance of complete basic immunization and the schedule for administering it.

2. For the Government and Health Centers:

Monitoring and reminder system will be strengthened system) and facilitate public access to immunization services, especially in remote areas.

3. For the Community:

Mothers and families need to be more active in seeking information about basic immunizations and utilizing available health facilities.

4. For Further Researchers:

Can conduct research with additional variables such as family support, maternal attitudes, and socio-cultural influences on the completeness of basic immunization in toddlers.

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