



ANALYSIS OF FACTORS AFFECTING HEPATITIS B IMMUNIZATION COVERAGE IN TODDLERS IN THE WORKING AREA OF THE GAMBIR BARU HEALTH CENTER, ASAHAN REGENCY

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Abstract

The coverage of Hepatitis B immunization in toddlers in the Gambir Baru Health Center Working Area in 2021 only reached 40.56%, far below the national target. This study aims to analyze the factors that affect the low immunization coverage. The method used is a mix method with an explanatory research design, to be carried out in July-August 2025. The research sample amounted to 66 mothers who had toddlers, obtained through purposive sampling, and 11 informants consisting of key, main, and supporting informants. Quantitative data were analyzed by univariate, bivariate (Chi-square), and multivariate (logistic regression) tests, while qualitative data used interactive analysis. The results showed that the majority of respondents were 36–45 years old (56.1%), had a high school education (53.0%), and worked as self-employed (37.9%). Factors of knowledge, attitude, trust, facilities, husband support, and health worker support affect immunization coverage. Multivariate analysis shows trust is the most dominant factor. Qualitatively, it was found that there is a public belief that the raw materials for Hepatitis B immunization are not halal, so many children are not immunized. It is suggested that the results of this study be a reference and evidence-based for students and health workers related to increasing immunization coverage.

Keywords : Influencing Factors, Immunization Coverage, Hepatitis B

Introduction

Hepatitis B is an infectious disease caused by the Hepatitis B virus (HBV) and can cause serious complications such as cirrhosis to liver cancer (Berkley, 2018). The disease is a global health problem with about 296 million chronic sufferers and 820,000 deaths each year. Prevention efforts through immunization are essential, especially in newborns, as perinatal transmission is at high risk of becoming chronic (WHO, 2023).

In Indonesia, hepatitis B is still classified as endemic with a fairly high prevalence. Although hepatitis B immunization has been included in the national immunization program, the coverage has not reached the target of 95% according to WHO standards. National data shows that HB immunization coverage is still below the target, even in some regions it is very low (Ministry of Health of the Republic of Indonesia, 2024). This condition also occurs in the Gambir Baru Health Center Working Area, where immunization coverage from 2021 to 2024 continues to be in the range of 40–45%, accompanied by an increase in hepatitis B cases every year (Asahan Health Office, 2024).

The low immunization coverage is influenced by various factors, including knowledge, attitudes, beliefs, family support, health workers, economic conditions, and limited facilities. Based on these conditions, this study was conducted to analyze factors that affect hepatitis B immunization coverage in infants in the Gambir Baru Health Center Working Area.

Method

The research uses an explanatory mix method design that combines quantitative and qualitative approaches in the period September 2024–April 2025 at the Gambir Baru Health Center, Asahan Regency. A quantitative sample of 66 mothers who had babies (purposive sampling) based on inclusion-exclusion criteria; The data was collected with a questionnaire tested for validity and reliability. Quantitative analysis included univariate, bivariate (Chi-square, $\alpha=0.05$), and multivariate (logistic regression) to identify the most influential factors on Hepatitis B immunization coverage. increase the validity of the findings (Amirin, 2011).

Research Results

1. Quantitative

Quantitative analysis showed that of the 66 respondents, most were 36–45 years old, had a high school education, and worked as self-employed. More than half of the respondents had a lack of knowledge (54.5%), negative attitudes (54.5%), unsupportive trust (59.1%), assessed inadequate facilities (53.0%), and stated that their husband's support was lacking (54.5%). The support of health workers was relatively better, with 51.5% of respondents stating support. The unmet Hepatitis B immunization coverage reached 56.1%.

A bivariate trial using Chi-square ($\alpha=0.05$) showed that all independent variables—knowledge, attitude, trust, facilities, husband support, and health worker support—had a significant relationship with Hepatitis B immunization coverage ($p < 0.05$). This indicates that the better the knowledge, attitude, trust, support of families, health workers, and the availability of facilities, the greater the chance of achieving immunization coverage.

In multivariate analyses with multiple logistic regression, the most dominant variables influencing immunization coverage were trust and facility. Respondents with less supportive trust were 20.694 times more likely to not meet immunization coverage than respondents with supportive trust ($p < 0.001$). Meanwhile, respondents who faced inadequate facilities had a 15.385 times greater chance of not meeting immunization coverage compared to respondents with adequate facilities ($p < 0.001$).

Table 1. Final Results of Logistic Regression Analysis:

Variabel	OR (Exp(B))	95% CI	p-value
Trust (less supportive vs supportive)	20,694	4,542 – 84,988	<0.001
Facilities (inadequate vs adequate)	15,385	3,705 – 63,887	<0.001

2. Qualitative

Qualitative findings corroborate these quantitative results. Interviews with midwives (key informants), mothers (main informants), and husbands (supporting informants) consistently reveal the dominant theme regarding the trust/halalness of the Hepatitis B vaccine. On the other hand, there is a perception of low risk of not being immunized, with an emphasis on tawakal/prayer, and the child's experience of "so far doing well". The informants also stated the need for clarification from the religious authorities (MUI/ustadz) so that doubts can be overcome. Barriers to access and availability of **facilities** are also cited as practical reasons that aggravate non-compliance with schedules. Overall, quantitative and qualitative evidence converge on two main levers of low trust and facility coverage that demand collaborative intervention strategies between health workers, religious leaders, and strengthening services in the field.

Discussion

1. Knowledge

The results showed that maternal knowledge was significantly related to Hepatitis B immunization coverage ($p=0.002$). Most of the respondents have a lack of knowledge, such as not knowing the benefits, schedule, or goals of immunization. This is in line with the opinion of Notoatmodjo (2012) who states that knowledge is an important domain in the formation of health measures. Low knowledge makes mothers more susceptible to external factors, such as family restrictions or lack of support facilities. Thus, increasing knowledge through health education is needed to encourage immunization behavior.

2. Attitude

Maternal attitudes were shown to be significantly related to immunization coverage ($p=0.025$). Mothers with negative attitudes tend not to bring their children immunizations, while positive attitudes increase compliance. Supriadi's research (in a study in Tasikmalaya Regency) found that mothers with a lack of attitude about immunization were 2.34 times more likely not to give HB immunization as early as possible. Rista's research also showed that respondents with a negative attitude had a 1.49 times higher risk of not immunization. This shows that attitudes are very decisive, so health workers need to improve maternal understanding through clear and convincing counseling (Rista et al., 2023).

3. Belief

The confidence variable emerged as the most dominant factor in multivariate analysis ($OR=20.694$; $p<0.001$). Unsupportive beliefs such as the assumption that vaccines are not halal or the tradition of waiting for a baby 40 days before leaving the house are the main barriers. This phenomenon is in accordance with Green's theory which calls culture and customs as predisposing factors for health behavior. In addition, other research also shows that health hoaxes on social media strengthen public skepticism about vaccines. Thus, the involvement of religious leaders and community leaders is very important to overcome belief-based barriers (Green, 1974).

4. Facilities

The availability of health facilities has been shown to be significantly related to immunization coverage ($p<0.001$). Difficult access due to long distances, no public transportation, and heavy terrain, especially during the rainy season, are the main obstacles. The results of this study are consistent with a study in Uganda that found low immunization coverage in rural areas due to poor road conditions during the rainy season (Lea et al., 2020) and Rahman's study which showed low immunization in remote areas due to difficult access to health services. This shows that immunization coverage is greatly influenced by the availability of facilities and transportation (Rahman et al., 2023).

5. Husband's Support

Husband support was significantly related to immunization coverage ($p<0.001$). Supportive husbands can give permission, remind schedules, and even accompany them to health facilities. Conversely, without the support of the husband or when the decision is influenced by the in-laws, the mother tends to delay or not provide immunizations. Mubarak called family support a reinforcing factor in health decision-making. Thus, immunization interventions should involve husbands and nuclear families (Mubarak et al., 2009).

6. Healthcare Worker Support

Health worker support was also significantly related ($p=0.006$), although it was not the dominant variable in the final model. Services from ANC, childbirth, to the postpartum period greatly determine

the success of HB-0 immunization. These findings are in line with Mubarak's theory that health worker support is a factor that strengthens health behavior. However, there are still mothers who consider information from health workers to be less convincing than religious leaders. Therefore, health workers need to strengthen the role of communication, counseling, and counseling, as well as involve promotional media that are easy to understand (Mubarak et al., 2009).

Conclusion

This study shows that knowledge, attitudes, beliefs, facilities, husband support, and support of health workers are significantly related to the coverage of Hepatitis B immunization in the Gambir Baru Health Center Working Area. The most dominant factor influencing is public belief, especially the assumption that vaccines are not halal and local cultural traditions, which are the main obstacles to achieving immunization coverage.

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