



Analysis of Achievements and Factors Playing a Role in Achieving Complete Basic Immunization During the Adaptation Period to the COVID-19 (Coronavirus Disease) Pandemic in Padang, Indonesia

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A B S T R A C T

The immunization program is a global program to prevent child deaths and provide immunity against infectious diseases. In Padang City, complete basic immunization coverage (IDL) in 2021 is still low (76.5%) compared to the target of 95%. This research aims to analyze the achievements of the IDL program in Padang City during the adaptation period to the COVID-19 pandemic. This research method is mixed methods research with a stratified random sampling technique. The results showed that the age frequency distribution of the baby's mothers was mostly 26-40 years old (83.2%), with a high level of education (78.4%) and more people working (52%). The frequency distribution of IDL status in Padang City shows an incomplete category of 67.2%. There is a significant relationship between the level of education, level of knowledge, attitudes and roles of health workers, and IDL status. The most dominant factor is the level of knowledge. IDL coverage is still low due to mothers' lack of understanding about the immunization schedule due to mothers' busy lives, family restrictions, and socio-cultural factors.

1. Introduction

Immunization is one of the most effective and efficient health efforts to prevent infectious diseases in children. Complete basic immunization (IDL) is a series of immunizations given to babies and children to protect them from various dangerous diseases, such as measles, diphtheria, tetanus, pertussis, polio, and hepatitis B. In Indonesia, the national immunization program has been launched since 1977. IDL coverage in Indonesia in 2020 fell from 93.7% (2019) to 82.6%. It is feared that this decrease will result in an increase in cases of diseases that can be prevented by immunization. Low IDL coverage can result in various negative consequences, such as increased risk of infectious diseases in children, child deaths due to

infectious diseases, and economic burden for families and the country.¹⁻³

In Padang City, IDL coverage in 2021 also decreased from 80.4% (2020) to 76.5%. This reduction is far from the national target of 95%. This shows that there are still many children in Padang City who have not received IDL. This decline was exacerbated by the COVID-19 pandemic situation which caused people's reluctance to visit health facilities. The decrease in IDL coverage in Padang City can be caused by several factors, such as busy parents, ignorance about the immunization schedule, wrong beliefs about immunization, and limited access to health services.⁴⁻⁶ This study aims to analyze the achievements and factors that play a role in IDL achievements during the

adaptation period to the COVID-19 pandemic in Padang, Indonesia.

2. Methods

This research uses a mixed methods research method with a sequential explanatory research design. The population of this study was all parents in Padang City who have children under five. The research sample was 125 people taken using a stratified random sampling technique. Stratification was carried out based on IDL coverage in community health centers, namely: Strata 1: Health Centers with IDL coverage > 80%; Strata 2: Health Centers with IDL coverage of 70-80%; Strata 3: Health Centers with IDL coverage < 70%. The research instrument used at the quantitative stage was a questionnaire. The questionnaire contains questions about the Respondent's characteristics, knowledge about immunization, attitudes towards immunization, access to health services, and the child's IDL status. Quantitative research data was analyzed using univariate, bivariate, and multivariate statistical analysis.

The research instruments used in the qualitative stage to explore determinant factors related to immunization coverage during the COVID-19 pandemic adaptation period were observation, in-

depth interviews, Focus group discussions (FGD), and document review. A total of 20 informants underwent in-depth exploration for a qualitative study. Qualitative research data was analyzed using qualitative analysis techniques based on grounded theory. Quantitative and qualitative data are integrated using data integration framework techniques. This research was conducted by upholding research ethics. Before the research was carried out, the researcher applied for a research permit from related parties, such as the Padang City Health Service and the Health Center where the research was conducted. Researchers also provide informed consent to respondents before respondents fill out questionnaires or take part in interviews.

3. Results and Discussion

Based on Table 1, the majority of respondents (83.2%) were aged 26-40 years. This shows that the majority of mothers who have children under five in Padang City are mothers who are mature in age and have experience in caring for children. As many as 78.4% of respondents had a high level of education. This shows that the level of maternal education in Padang City is relatively high. The majority of respondents (52%) work. This shows that many mothers in Padang City work outside the home.

Table 1. Characteristics of respondents.

Characteristics	Frequency	Percentage
Age of the baby's mother		
19-25 years	21	16,80%
26-40 years	104	83,20%
The education level of the baby's mother		
Low	27	21,60%
High	98	78,40%
Employment status of the baby's mother		
Working	65	52%
Not working	60	48%

Based on Table 2, it can be seen that the frequency distribution of IDL status in Padang City shows an incomplete category of 67.2%. This shows that IDL

coverage in Padang City is still low compared to the national target of 95%.

Table 2. Frequency distribution of IDL status in Padang.

IDL status	Frequency	Percentage
Complete	41	32,80%
Incomplete	84	67,20%

Based on Table 3, there is a significant relationship between the level of education, level of knowledge, attitudes, and roles of health workers and IDL status. The most dominant factor is the level of knowledge. This shows that mothers with a high level of knowledge are more likely to complete their child's IDL compared to mothers with a low level of knowledge. Mothers with a high level of education are 2.34 times more likely to complete their child's IDL compared to mothers with a low level of education. Mothers with a high level of

knowledge are 3.12 times more likely to complete their child's IDL compared to mothers with a low level of knowledge. Mothers with a positive attitude towards immunization were 1.78 times more likely to complete their child's IDL compared to mothers with a negative attitude. Mothers who get a good health worker role are 1.56 times more likely to complete their child's IDL compared to mothers who don't get a good health worker role.

Table 3. Results of analysis of the relationship between factors playing a role in IDL achievement.

Factor	p-value	OR (95% CI)
Level of education	0,001	2,34 (1,42-3,87)
Knowledge level	0,001	3,12 (1,87-5,21)
Attitude	0,012	1,78 (1,12-2,82)
Role of health workers	0,025	1,56 (1,02-2,41)

Based on Table 4, mothers' lack of understanding about the immunization schedule is the main factor causing the low IDL coverage in Padang City. Many mothers do not know the complete and timely immunization schedule. This is caused by several factors, namely, Lack of education from health workers about immunization schedules and mothers getting information about immunization schedules from various sources that are not always accurate, such as the internet, family, or neighbors. Mothers' busyness is also one of the factors that causes low IDL coverage in Padang City. Many mothers work outside the home, so they don't have time to take their children to the health center. This is exacerbated by the lack of

support from the family and husband in taking the child to the health center. Family restrictions are also one of the factors causing low IDL coverage in Padang City. Some families still have false beliefs about immunization, such as that immunization can cause autism or dangerous side effects. There are also families who prohibit their children from getting immunizations for religious or cultural reasons. Socio-cultural factors are also one of the factors that cause low IDL coverage in Padang City. A negative stigma against immunization still exists in some communities. There is an opinion that immunization is not important and children will remain healthy even if they are not immunized.

Table 4. Qualitative factors affecting low IDL coverage in Padang City during the adaptation period to the COVID-19 pandemic.

Factor	Information
Lack of mother's understanding of immunization schedules	The mother does not know the complete and timely immunization schedule. Mothers get information about immunization schedules from various sources, which are not always accurate. Lack of education from health workers regarding immunization schedules.
Busy mothers	Mothers work outside the home, so they don't have time to take their children to the health center. Lack of support from family and husband in taking the child to the health center.
Family restrictions	The family has false beliefs about immunization. Families prohibit their children from getting immunizations for religious or cultural reasons.
Socio-cultural factors	A negative stigma against immunization still exists in some communities. There is an opinion that immunization is not important and children will remain healthy even if they are not immunized.

Quantitative research results show that there is a significant relationship between the level of education, level of knowledge, attitudes and roles of health workers, and IDL status. The most dominant factor is the level of knowledge. This shows that mothers with a high level of knowledge are more likely to complete their child's IDL compared to mothers with a low level of knowledge. The mother's education level has a positive relationship with the mother's level of knowledge about immunization. Mothers with a higher level of education have more opportunities to get information about immunization from various sources, such as schools, mass media, and the internet. In addition, mothers with a higher level of education find it easier to understand information about immunization and are more critical in choosing accurate information. The mother's level of knowledge about immunization has a positive relationship with the mother's attitude towards immunization. Mothers with a high level of knowledge about immunization are more likely to have a positive attitude toward immunization. Mothers with high knowledge about the benefits of immunization will be more willing to take their children to the community health center to get immunizations.⁷⁻⁹

Mothers' attitudes towards immunization have a positive relationship with the role of health workers in providing education about immunization. Health workers who have a good role in providing education about immunization will find it easier to change

mothers' negative attitudes towards immunization into positive ones. The role of health workers in providing education about immunization has a positive relationship with IDL status. Health workers who have a good role in providing education about immunization will find it easier to increase mothers' knowledge about immunization and change mothers' negative attitudes towards immunization to positive ones. This will increase the mother's chances of completing her child's IDL.¹⁰⁻¹²

The low coverage of IDL in Padang City, as shown in this study, can be explained by several qualitative factors that have biological plausibility. The mother's lack of understanding about the immunization schedule can result in several consequences that impact IDL coverage. Mothers who do not know the timely immunization schedule may delay immunizing their children. This can cause children to be vulnerable to infectious diseases in the critical period before receiving immunization. Mothers who do not know the complete immunization schedule may not take their children to get all the required immunization doses. This can cause children to not have optimal protection against infectious diseases. Mothers who do not have accurate information about immunizations may choose immunizations that do not suit their child's needs. This can endanger children's health and reduce the level of trust in the immunization program.^{13,14}

Busy mothers, especially mothers who work outside the home, can be an obstacle in taking their children to the health center to get immunizations. Working mothers may find it difficult to find free time to take their children to the health center during working hours. This can cause delays or even cancellation of immunization. Lack of support from family, husband, or work can make it even more difficult for mothers to take their children to the health center. This can cause children to miss the opportunity to get immunizations on time. High transportation costs to go to the health center can be a burden for working mothers, especially for those with low incomes. This can cause mothers to delay or not even take their children to the health center to get immunizations.^{13,14}

Family restrictions based on false beliefs or sociocultural factors can be a significant obstacle in increasing IDL coverage. Some families may have false beliefs about immunizations, such as that immunizations can cause autism or dangerous side effects. This can cause them to prohibit their children from getting immunizations. Negative stigma against immunization in some communities, or the belief that immunization is not important, can influence a family's decision to immunize their child. Sociocultural factors, such as negative stigma towards immunization, the influence of religious leaders, and local traditions, can influence people's attitudes and behavior towards immunization. Negative stigma against immunization, such as the belief that immunization can cause certain diseases, can make parents hesitate to immunize their children. In some communities, religious leaders have a large influence on parents' decisions about immunizing their children. If religious leaders have a negative view of immunization, this could reduce immunization coverage in the community. In some areas, there are traditions or customs that prohibit children from being immunized. This can be an obstacle to increasing IDL coverage.^{15,16}

4. Conclusion

There is a significant relationship between the level of education, level of knowledge, attitudes and roles of health workers, and IDL status. The most dominant factor is the level of knowledge. The low IDL coverage in Padang City is caused by several qualitative factors, such as mothers' lack of understanding about the immunization schedule, busy mothers, family restrictions, and socio-cultural factors.

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