

# Determinants Affecting the Provision of Complete Basic Immunization in East Kolaka Regency, 2019

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**Abstract- Background** Based on the results of Basic Health Research (Riskesdas) in 2013 the coverage of giving full immunization in Indonesia was 59.2%, incomplete immunization was 32.1%, had never been immunized 8.7%. Immunization coverage in East Kolaka Regency has not reached the strategic plan target (IDL 86.27%; measles 83.03%; UCI 90.98%).

**Objectives** This study aims to determine the factors that influence the completeness of basic immunization in East Kolaka Regency in 2019. **Method** The total sample of 564 respondents was taken in a cluster of 47 mothers from each sub-district in East Kolaka using a cross sectional study design. **Results** The results of the analysis found that variables that had a statistically significant effect ( $p$ -value  $<0.05$ ) on the provision of complete basic immunization in East Kolaka Regency in 2019 were the level of maternal education (OR: 4.83; 95% CI: 2.31– 10.11), vehicle ownership (OR: 7.91; 95% CI: 1.17-53.34), health facilities for vaccinations (OR: 21.38; 95% CI: 1.30-350.71), distance to health facilities (OR: 7.78; 95% CI: 3.56–16.99), services in health facilities (OR: 10.17; 95% CI: 3.61–28.63), support family (OR: 48.36; 95% CI: 23.00-101.69). **Conclusions** Determinants that influence the provision of complete basic immunizations in East Kolaka Regency in 2019 are the level of maternal education, vehicle ownership, health facilities where vaccinations / immunizations are carried out, distance to health facilities, services in health facilities, and family support.

**Index Terms-** Complete Basic Immunization, Determinants

## I. INTRODUCTION

Immunization is very instrumental in tackling health problems and is one of the effective ways to prevent disease transmission. Thus, children are not easily infected with infections, do not easily suffer illness, prevent outbreaks and prevent the possibility of death due to an illness. The importance of immunization is based on the thinking of a healthy paradigm that promotive and preventive efforts are the most important things in improving health status.<sup>4</sup>

In immunization programs, the provision of Complete Basic Immunization (IDL) to infants is a must. Immediately after birth (before the age of seven days), the baby should be immunized with hepatitis B 0 - 7 days (HB 0) one dose. Then at the age of one month, given a dose of BCG immunization and polio immunization. At two, three and four months, they were given pentavalent immunization and polio immunization, one dose each. One dose measles immunization is given at the age of nine months.

Although the schedule has been set as above, in principle all antigens (except HB 0) may be given to infants before one year of age, so that Basic Basic Immunization (IDL) is fulfilled. Complete Basic Immunization is achieved if the baby has received HB 0, BCG, pentavalent as much as three doses, polio as much as four doses, and measles before one year old.<sup>4</sup>

Indonesia's immunization target in sustainable development (Millennium Development Goals / MDGs) has been achieved, but it still needs to increase the coverage of routine immunizations. Increased coverage of routine immunization is needed because there are still 13 provinces whose achievements are still below the strategic plan for complete basic immunization. Based on the results of Riskesdas in 2013 the coverage of giving full immunization was 59.2%, incomplete immunization was 32.1%, and it was never immunized at 8.7%.<sup>4</sup>

When viewed by each immunization by province, Papua has the lowest immunization coverage for all types of immunizations including BCG (53.6%). Measles (47.1%), and polio 4 (40.5%), while the lowest DPTHB3 percentage is in West Sulawesi (35.7%). The Province of Yogyakarta has the highest immunization coverage for all types of basic immunizations including BCG (100.0%), measles (96.4%), polio (96.4%), and DPT-HB3 (96.4%), while according to Riskesdas 2010 data in Southeast Sulawesi the percentage of basic immunization completeness includes: BCG immunization (65.3%), polio immunization (50.0%), DPT-HB immunization (44.9%), measles immunization (66.7%).<sup>3</sup>

Based on the Republic of Indonesia's Ministry of Health Strategic Plan for 2017, the percentage of UCI villages in Southeast Sulawesi has not reached the target (Renstra target = 95%) because it has only reached 85.92%, higher than the achievements in 2016 of 82.87%. Although on average the provinces have not yet reached the target, there are at least 2 (two) districts that have achieved the target, namely Buton and Kendari City. The low coverage of the UCI village is due to an incomplete recording and reporting system from the health center, difficult regional conditions so that under certain conditions some babies do not get complete basic immunization, other factors are certain beliefs and local culture that is skeptical of immunization programs for infants.<sup>8</sup>

Every baby must get five Complete Basic Immunizations (IDL) consisting of 1 dose of BCG, 3 doses of DPT, 4 doses of polio, 3 doses of hepatitis B and 1 dose of measles. Of the five complete basic immunizations required, measles is an immunization that receives serious attention from the provincial government because in Southeast Sulawesi measles is one of the

diseases that often occurs in outbreaks and is a cause of child death.<sup>8</sup>

Coverage of Complete Basic Immunization (IDL) of Southeast Sulawesi in 2017 was 86.57%, an increase of 1% compared to the previous year which was only 85.47%, although it was still below the target (90%), but some Regencies / Cities had achieved or exceeded the target . East Kolaka Regency is one of the districts in Southeast Sulawesi Province that has not reached the target of Complete Basic Immunization (IDL) in 2017 (86.27%).<sup>8</sup>

In 2017, the achievement of measles immunization coverage and Universal Coverage Immunization (UCI) in rural/urban villages in East Kolaka Regency has not reached the target of the strategic plan (measles = 90%, UCI = 95%). Measles immunization coverage in East Kolaka Regency in 2017 was 83.03%. The coverage of Universal Coverage Immunization (UCI) in rural/urban villages in East Kolaka Regency in 2017 was 90.98%.<sup>8</sup>

## II. METHOD

This research is an analytic observational survey research using cross sectional design that aims to find out what factors influence the completeness of basic immunization in East Kolaka Regency. There are also factors that are examined, namely age of mother, level of education, knowledge, attitude, mother's occupation, father's occupation, household income, vehicle ownership, health facilities, distance to health facilities, health services, Post-Immunization Follow-up Events (KIPI), and family support.

The study population was all mothers who had children aged 1-5 years. The sample was selected in a cluster with the number of samples taken was 47 respondents from each district in East Kolaka Regency.

Sources of data in this study are primary and secondary data. Primary data collection methods were obtained through interviews using a questionnaire. Secondary data obtained from immunization coverage data District Health Office. East Kolaka. After that the data is processed and analyzed using the multiple logistic regression method.

## III. RESULTS

East Kolaka Regency is one of 17 districts in Southeast Sulawesi Province which was formed through Law No. 8 of 2013 concerning the Establishment of East Kolaka Regency in Southeast Sulawesi Province. East Kolaka Regency which is the result of the division of Kolaka Regency consists of 117 rural villages and 16 urban villages spread across 12 sub-districts. In accordance with BPS East Kolaka data for 2018, the fields of agriculture, forestry and fisheries occupy the highest position in the distribution of the percentage of Gross Regional Domestic Product at Current Prices (GRDP-ADHB) with a value of 42.20%.<sup>11</sup>

Geographically, East Kolaka Regency is flanked by 6 districts namely in the north bordering North Kolaka Regency, in the east bordering North Konawe Regency and Konawe Regency, in the south bordering South Konawe Regency and Bombana

Regency and in the west bordering Kolaka Regency . East Kolaka Regency has an area of 3,918.38 km2 with an area of 60,331 Ha of plantation land, 11,422 Ha of paddy land, 7,374 Ha of fields, 3,575 Ha of fields, 3,449 Ha of fields, 2,881 Ha of unused land. The population of East Kolaka Regency was 130,860 people in 2018, with the most distribution in Lambandia District (19,254 inhabitants). and the smallest is in Ueesi District (4,025 inhabitants).<sup>11</sup>

In 2017, the achievement of measles immunization coverage and Universal Coverage Immunization (UCI) in villages in East Kolaka Regency has not reached the target of the strategic plan (measles = 90%, village UCI = 95%). Measles immunization coverage in East Kolaka Regency in 2017 was 83.03%. The coverage of Universal Coverage Immunization (UCI) in rural / urban villages in East Kolaka Regency in 2017 was 90.98%. East Kolaka Regency is one of the districts in Southeast Sulawesi Province that has not yet reached the target of Complete Basic Immunization / IDL (90%) in 2017 (86.27%).<sup>8</sup>

**Table 1. Distribution of immunization status in East Kolaka Regency in 2019**

Variable	Category	N	%
Immunization status	Complete	336	59,6
	Incomplete	228	40,4

In table 1, it can be seen from a total of 564 respondents, in which the sample was taken as a cluster of 47 mothers with children aged 1-5 years from each district in East Kolaka Regency as many as 40,4% of children whose basic immunizations were incomplete and 59, 6% of children receive complete basic immunization. The percentage of complete and incomplete immunization status is almost comparable. There are still many children who did not receive complete basic immunization in East Kolaka Regency during 2019.

**Table 2. Distribution of Completeness Basic Immunization by District in East Kolaka Regency in 2019**

District	Immunization Status			
	Complete		Incomplete	
	N	%	N	%
Lambandia	24	51.10	23	48.90
Loea	26	55.30	21	44.70
Poli-polia	33	70.20	14	29.80
Aere	32	68.10	15	31.90
Ladongi Jaya	27	57.40	20	42.60
Dangia	26	55.30	21	44.70
Tirawuta	30	63.80	17	36.20
Sanggon	23	48.90	24	51.10
Lalolae	31	66.00	16	34.00
Tinondo	30	63.80	17	36.20
Mowewe	26	55.30	21	44.70
Ueesi	28	59.60	19	40.40

Table 2 shows the distribution of basic immunization completeness according to subdistricts in East Kolaka Regency in 2019. Poli-polia sub-districts are districts that have the highest complete basic immunization status in East Kolaka in 2019

(70.20%). Children who received incomplete basic immunizations were concentrated most in Sanggona District (51.10%).

**Table 3. Bivariate Analysis of Determinants that Affects the Provision of Complete Basic Immunization in East Kolaka Regency in 2019**

Variables	Category	Immunization Status				OR (95% CI)
		Complete		Incomplete		
		N	%	N	%	
Age of mother	15 – 30 year old	200	54,5	167	45,5	1,86 (1,29 – 2,86)
	31 – ≥ 40 year old	136	69,0	61	31,0	
Level of education	No school	–	–	2	100	12,91 (8,53 – 19,52)
	Primary school	1	3,8	25	96,2	
	Junior high	6	8,7	63	91,3	
	Senior high	77	44,8	95	55,2	
	Bachelor	232	84,4	43	15,6	
	Magister	20	100	–	–	
Knowledge	Know	323	65,0	174	35,0	7,71 (4,09 – 14,52)
	Do not know	13	19,4	54	80,6	
Attitude	Agree	333	61,4	209	38,6	10,09 (2,95 – 34,52)
	Disagree	3	13,6	19	86,4	
Mother's occupation	Doesn't work	7	18,9	30	81,1	7,12 (3,07 – 16,52)
	farmer	18	16,7	90	83,3	
	Private sector worker	221	69,1	99	30,9	
	Government employees	90	90,9	9	9,1	
Father's occupation	Doesn't work	–	–	–	–	6,91 (4,06 – 11,739)
	Farmer	54	25,6	157	74,4	
	Private sector worker	157	74,8	53	25,2	
	Government employees	125	87,4	18	12,6	
Household income (per month)	≤ Rp. 1.000.000,-	9	10,1	80	89,9	10,45 (4,46 – 24,47)
	Rp. 1.000.000,- s/d Rp. 2.000.000,-	45	34,9	84	65,1	
	Rp. 2.000.000,- s/d Rp. 3.000.000,-	208	78,2	58	21,8	
	Rp. 3.000.000,- s/d Rp. 5.000.000,-	70	92,1	6	7,9	
	>Rp. 5.000.000,-	4	100	–	–	
Vehicle ownership	Have	334	64,7	182	35,3	42,21 (10,13 – 175,88)
	Do not have	2	4,2	46	95,8	
Health Facilities	Integrated healthcare center	335	59,9	224	40,1	5,98 (0,66 – 53,87)
	Public health center	1	20,0	4	80,0	
Distance to health facilities	Far	102	34,1	197	65,9	14,58 (9,35 – 22,74)
	Near	234	88,3	31	11,7	
Health services	Good	328	72,2	126	27,8	33,19 (15,70 – 70,15)
	Poor	8	7,3	102	92,7	
Post-Immunization Follow-up Events (KIPI)	Ever have	179	49,0	186	51,0	3,88 (2,61 – 5,78)
	Never have	157	78,9	42	21,1	
Family support	Yes	313	92,6	25	7,4	110,50 (61,05 – 199,98)
	No	23	10,2	203	89,8	

Table 3 shows the results of the determinant bivariate analysis that influenced the provision of complete basic immunization in East Kolaka Regency in 2019. After cross-sectional analysis was carried out between the dependent variables of immunization status to the independent variables factors that

were considered to influence in giving complete basic immunizations, the maternal age variable had effect ratio (OR value) of 1.86 (95% CI = 1.29 - 2.86), meaning that mothers who have children aged 31 - 40+ years have a 1.86 times chance to provide complete basic immunization to their children mothers

aged 15-30 years. When viewed from the variable maternal age, more children who received complete basic immunizations than children who received incomplete basic immunizations. In mothers aged 15-30 years, more children received complete basic immunizations than those who received incomplete basic immunizations. Likewise, mothers aged 31 - 40+ years. Table 3 shows that mothers aged 15 - 30 years more than mothers aged 31 - 40+ years.

In the variable level of maternal education, the OR value is 12.91 (95% CI = 8.53 - 19.52), meaning that mothers who have children who have higher education have 12.91 times the opportunity to provide complete basic immunizations to their children compared to mothers who have low education. When viewed from the variable level of maternal education, more children who received complete basic immunizations than children who received incomplete basic immunizations. In mothers with tertiary education, more children received complete basic immunizations than those who received incomplete basic immunizations. Whereas for mothers who have low education, more children who get incomplete basic immunization than children who get complete basic immunization. From table 3, it is found that mothers with a bachelor's degree (S1) have the most compared to the education level of other mothers.

If seen from the mother's knowledge variable about immunization, an OR value of 7.71 (95% CI = 4.09 - 14.52) is obtained, meaning that a mother who has knowledge about immunization has a 7.71 times chance to provide a complete basic immunization to her child compared to mothers who don't know about immunizations. When viewed from the mother's knowledge variable, more children received complete basic immunizations than children who received incomplete basic immunizations. In mothers who have knowledge of immunization, more children get complete basic immunizations than those who get incomplete basic immunizations. Whereas for mothers who do not know about immunization, more children have incomplete basic immunization than children who get complete basic immunization. Table 3 shows that mothers who know about immunization more than women who do not know about immunization.

In the mother's attitude variable the OR value is 10.09 (95% CI = 2.95 - 34.52) meaning that respondents who agree on the implementation of immunization have 10.09 times the opportunity to provide complete basic immunization to their children compared to respondents who disagree about immunization implementation. When viewed from the mother's attitude variable, more children received complete basic immunization than children who received incomplete basic immunization. Among respondents who agreed on the implementation of immunizations, more children received complete basic immunizations than those who received incomplete basic immunizations. Whereas for respondents who disagreed with immunizations, more children had incomplete basic immunizations than children who received complete basic immunizations. Table 3 shows that there are more respondents who agree on the implementation of immunization than mothers who do not agree on the implementation of immunization. Most respondents agreed about implementing immunizations.

When viewed from the mother's occupation variable, an OR value of 7.12 (95% CI = 3.07 - 16.52) means that working mothers have 7.12 times the opportunity to provide complete basic

immunization to their children compared to mothers who do not work. When viewed from the mother's occupational variable, more children received complete basic immunization than children who received incomplete basic immunization. In working mothers, more children received complete basic immunizations than those who received incomplete basic immunizations. Whereas for mothers who do not work, more children who have incomplete basic immunizations than children who get complete basic immunizations. From table 3, it is found that there are more mothers working than mothers who do not work. Most of the mothers work in the private sector.

On the father's occupation variable the OR value is 6.91 (95% CI = 4.06 - 11.739) meaning that the father who works as a civil servant has 6.91 times the opportunity to provide complete basic immunization to his child compared to the father who works as a farmer and the private sector. When viewed from the father's work variable, more children received complete basic immunizations than children who received incomplete basic immunizations. In fathers who work as civil servants, more children get complete basic immunizations than those who get incomplete basic immunizations. Likewise, fathers who work as farmers and private. From table 3, there are more fathers who work as farmers and the private sector than fathers who work as civil servants.

If seen from the household income variable, an OR value of 10.45 (95% CI = 4.46 - 24.47) means that high-income households have 10.45 times the opportunity to provide complete basic immunization to their children compared to low-income households. When viewed from the variable household income, more children who received complete basic immunizations than children who received incomplete basic immunizations. In high-income households, more children received complete basic immunizations than those who received incomplete basic immunizations. Likewise in low-income households. Table 3 shows that there are more low-income households compared to high-income households. The majority of households in East Kolaka Regency in 2019 are low income.

In the vehicle ownership variable, the OR value is 42.21 (95% CI = 10.13 - 175.88), which means that households with vehicles have 42.21 times the opportunity to provide complete basic immunization to their children compared to households without vehicles. When viewed from the vehicle ownership variable, more children received complete basic immunization than children who received incomplete basic immunization. In households with vehicles, more children receive complete basic immunizations than those who get incomplete basic immunizations. Whereas in households without vehicles, more children have incomplete basic immunizations compared to children who have complete basic immunizations. Table 3 shows that there are more households with vehicles than households without vehicles. Most households in East Kolaka Regency in 2019 have a vehicle.

If seen from the health facility variable, an OR value of 5.98 (0.66 - 53.87) means that mothers who vaccinate children at integrated health care center have 5.98 times the opportunity to provide complete basic immunizations to their children compared to mothers who vaccinate children at the public health center. When viewed from the variable health facilities, more children who received complete basic immunizations than children who

received incomplete basic immunizations. In mothers who vaccinated children at the integrated health care center, more children received complete basic immunizations than those who received incomplete basic immunizations. Whereas mothers who vaccinate children in public health center, more children have incomplete basic immunizations than children who get complete basic immunizations. Table 3 shows that there are more mothers vaccinating children at integrated health care center than mothers who vaccinate children at the public health center. Most of the mothers in East Kolaka Regency vaccinated their children at the integrated health care center.

In the variable distance to the health facility, the OR value is 14.58 (9.35 - 22.74), meaning that the respondent who lives near the health facility has 14.58 times the opportunity to provide complete basic immunization to his child compared to respondents who live far away from health facilities. When viewed from the distance to health facilities variable, more children who received complete basic immunizations than children who received incomplete basic immunizations. In respondents whose homes are close to health facilities, more children received complete basic immunization than those who received incomplete basic immunization. Whereas respondents who live far from health facilities, more children who have incomplete basic immunization than children who get complete basic immunization. From table 3, it is found that respondents who live far from health facilities are more than those who live near health facilities.

In the health service variable obtained an OR value of 33.19 (95% CI = 15.70 - 70.15) means that respondents who get good health services have a 33.19 chance to provide complete basic immunization to their children compared to respondents who get poor health services. If seen from the health service variable, more children received complete basic immunization than children who received incomplete basic immunization. Among respondents who received good health services, more children received complete basic immunizations than those who received incomplete basic immunizations. Whereas respondents who received poor health services, more children who had incomplete basic immunizations than children who received complete basic immunizations. From table 3 it is found that respondents who get good health services more than respondents who get poor health services.

If seen from the Post Immunization Incontinence (KIPI) variable, an OR value of 3.88 (95% CI = 2.61 - 5.78) means that mothers whose children have never experienced KIPI have a 3.88 times chance to provide basic immunizations complete to their children compared to mothers whose children have experienced KIPI. If seen from the Post Immunization Incontinence (KIPI) variable, there were more children who received complete basic immunization than children who received incomplete basic immunization. In mothers whose children have never experienced KIPI, more children received complete basic immunization than those who received incomplete basic immunization. Whereas for mothers whose children have had KIPI, more children have incomplete basic immunization than children who get complete basic immunization. Table 3 shows that there are more children who have had KIPI compared to children who have not experienced KIPI.

The family support variable obtained an OR value of 110.50 (95% CI = 61.05 - 199.98) means that mothers who get family

support have an opportunity of 110.50 times to provide complete basic immunization to their children compared to mothers who do not get family support . When viewed from the variable family support, more children received complete basic immunization than children who received incomplete basic immunization. In mothers who received family support, more children received complete basic immunizations than those who received incomplete basic immunizations. While mothers who do not get family support, more children who have incomplete basic immunizations than children who get complete basic immunizations. From table 3, it is found that mothers who have more family support than mothers who do not have family support. The factor of family support has the most influence as a determinant in the provision of complete basic immunization in East Kolaka Regency in 2019.

**Table 4. Results of the Multivariate Determinant Analysis that Affects the Provision of Complete Basic Immunization in East Kolaka Regency in 2019**

Variables	P Value	OR	95% C.I.
Age of mother	0,07	2,14	0,92 – 4,94
Level of education	0,00	3,76	1,62 – 8,72
Knowledge	0,83	0,85	0,19 – 3,79
Attitude	0,94	0,93	0,14 – 6,06
Mother's occupation	0,57	1,56	0,33 – 7,28
Father's occupation	0,33	1,68	0,58 – 4,87
Household income	0,78	1,26	0,23 – 6,92
Vehicle ownership	0,05	8,27	0,92 – 74,01
Health facilities	0,02	23,99	1,39 – 413,70
Distance to health facilities	0,00	7,93	3,50 – 17,95
Health services	0,00	9,47	3,08 – 29,12
Post-Immunization Follow-up Events (KIPI)	0,23	1,63	0,72 – 3,67
Family support	0,00	47,87	21,70 – 105,59

Table 4 shows the results of a multivariate analysis of determinants that affect the provision of complete basic immunization in East Kolaka Regency in 2019. From the results of the analysis, several independent variables considered as determinants in the provision of complete basic immunization were found to have no significant effect (p-value > 0.05) on the dependent variable is the completeness of immunization status in children in East Kolaka Regency during 2019. Some of these variables include maternal age, knowledge, attitude, mother's occupation, father's occupation, household income, and the Post-Immunization Follow-up Event (KIPI). These variables must be excluded one by one from the next stage of analysis starting from the variables that have the largest p-value to obtain variables that have a significant effect on the dependent variable.

**Table 5. Final Models of Multivariate Determinant Analysis that Affect the Provision of Complete Basic Immunization in East Kolaka Regency in 2019**

Variables	p-value	Exp(B)	95% C.I.
Level of education	0,00	4,83	2,31 – 10,11
Vehicle ownership	0,03	7,91	1,17 – 53,34

Health facilities	0,03	21,38	1,30 – 350,71
Distance to health facilities	0,00	7,78	3,56 – 16,99
Health services	0,00	10,17	3,61 – 28,63
Family support	0,00	48,36	23,00 – 101,69

Table 5 shows the final model of the multivariate determinant analysis that influences the provision of complete basic immunization in East Kolaka Regency in 2019. From the results of the analysis, variables that have a statistically significant effect (p-value <0.05) on the provision of complete basic immunization in the Regency East Kolaka during 2019. These variables include the level of maternal education, vehicle ownership, health facilities for vaccinations, distance to health facilities, services in health facilities, and family support.

#### IV. DISCUSSION

Immunization is very instrumental in tackling health problems and is one of the effective ways to prevent disease transmission. The importance of immunization is based on the thinking of a healthy paradigm that promotive and preventive efforts are the most important things in improving health status. <sup>2</sup>

In the immunization program, giving Basic Basic Immunization to infants is a must. Immediately after birth (before the age of seven days), the baby should be immunized with hepatitis B 0 - 7 days (HB 0) one dose. Then at the age of one month, given a dose of BCG immunization and polio immunization. At two, three and four months, they were given pentavalent immunization and polio immunization, one dose each. One dose measles immunization is given at the age of nine months. Although the schedule has been set as above, in principle all antigens (except HB 0) may be given to babies before one year of age, so that Basic Basic Immunization is fulfilled. <sup>2</sup>

However, in reality there are still many children who do not get complete basic immunizations. Based on the results of Riskesdas in 2013 the coverage of giving full immunization was 59.2%, incomplete immunization was 32.1%, and it was never immunized at 8.7%. <sup>2</sup>

Many factors affect so that there are still many children who do not get complete basic immunization. Some factors that are considered to be determinants in providing complete basic immunization to children, especially in this study are the age of the mother, level of education, knowledge, attitude, mother's occupation, father's occupation, household income, vehicle ownership, distance to the health facilities, health facilities, health services, Post-Immunization Follow-Up Events (KIPI) involvement, and family support.

Table 5 shows that from several variables considered to be determinants in providing complete basic immunization to children, significant factors were found, namely education level, vehicle ownership, health facilities for vaccinations, distance to health facilities, health services, and family support.

Table 5 shows that education level has a significant effect on giving complete basic immunization in East Kolaka Regency in 2019. After multivariate analysis, the OR value is 4,83, so it can be concluded that mothers with higher education have 4,83 times the opportunity to provide basic immunizations complete to their children compared to mothers with low education.

Research conducted by Rahmawati AI on Factors Affecting the Completeness of Basic Immunization in the North Krembangan District in 2013 in Vivi Triana on Factors Related to Provision of Complete Basic Immunization in infants in 2015 stated that the basic concept of education is a learning process that means a change towards a more mature, better and more mature in individuals, families and communities. Education becomes very important in influencing knowledge. Individuals who have a high level of education tend to be more receptive to information as well as the problem of information about immunization provided by health workers, conversely mothers with a low education level will have difficulty receiving information so that they lack understanding about the completeness of immunizations. Different person's education will also affect someone in decision making, in mothers with high education more easily accept a new idea than mothers with low education so that information can more easily be accepted and implemented. <sup>6 9</sup>

The level of education a person gets from formal schooling can affect one's knowledge. Health education can help mothers or community groups in addition to increasing knowledge as well as to improve their behavior to achieve optimal health degrees. The level of education and knowledge of the mother greatly influences the implementation of child / infant immunization activities, both formal and non-formal education. <sup>6 9</sup>

It can be seen in table 5 that vehicle ownership has a significant effect on the provision of complete basic immunization in East Kolaka Regency in 2019 with an OR value of 7,91, meaning that households that have a vehicle have 7,91 times the opportunity to provide complete basic immunization to their children compared to households that have don't have a vehicle. According to Green (1908) in Notoadmodjo (2003) there are three factors that affect health research both individuals and communities, one of which is the enabling factor, namely the factors that enable or facilitate behavior/actions, including facilities and infrastructure or facilities for the occurrence of health behaviors, environmental conditions such as availability, affordability, and range capability of resources. <sup>5</sup> In Isfan's research (2006) in Lienda Wati (2009) explains that the proportion of the status of completeness of immunization according to ownership of goods such as radio, tv, and vehicles will carry out more complete immunizations than mothers with low ownership levels (do not own any of these items). <sup>10 1</sup>

Facilities for vaccination/immunization also have a significant effect as a determinant in the provision of complete basic immunization in children in East Kolaka Regency in 2019 with an OR value of 21,38 after multivariate analysis. Which means that mothers who vaccinate children at posyandu have a 21,38 times chance to provide complete basic immunization to their children compared to mothers who vaccinate children at the puskesmas. According to the results of the study, this can occur because it is caused by two factors, namely the distance to the health facility and the services provided at the health facility. This can also be seen in the results of the multivariate analysis shown in Table 5 where the distance and service variables are also determinants that have a significant effect on the provision of complete basic immunization in children in East Kolaka Regency. Distance factor has a effect of 7,78 on the dependent variable which means that respondents who live near health facilities have a 7,78 times chance to provide complete basic immunization to

their children compared to respondents whose homes are far from health facilities. While the service factor is also a significant determinant of the provision of complete basic immunization of 10,17, which means that respondents who get good health services have an opportunity of 10,17 times to provide complete basic immunizations to their children compared to respondents who get poor health services.

Previously it has been explained according to Green (1908) in Lienda Wati (2009) that the factors that enable or facilitate health behaviors/actions include facilities and infrastructure or facilities for the occurrence of health behaviors, namely environmental conditions such as availability, affordability, and range capability of resources <sup>10</sup>. From the results of this study, respondents tended to vaccinate their children in posyandu compared to other health facilities (puskesmas, hospitals, etc.) because if viewed from availability factors, posyandu was the place provided and was the most suitable for vaccinating children. Meanwhile, if viewed from the affordability and range capability factors of the sources, community access to the posyandu is largely facilitated so that the distance is not too far from where the community lives so that both people who have vehicles and who don't have vehicles are able to access the health facilities.

Respondents tended to vaccinate their children at posyandu compared to other health facilities (puskesmas, hospitals, etc.). One other factor is that the services at the posyandu are managed and organized from, by, for and with the community itself in order to empower the community and provide convenience to the community in obtaining basic health services. Services conducted at posyandu are community-based services, where services at posyandu are managed by the community itself. So that the community no longer has any doubts about coming to the posyandu because they consider the services performed, provided by their own close neighbors. Of course, through the stages of training and recruitment of posyandu cadres.

Family support is the most influential determinant in the provision of complete basic immunization to children in East Kolaka Regency in 2019. After multivariate analysis, the variable of family support has a significant effect on giving complete basic immunization with an OR value of 48,36, which means mothers who get support families have 48,36 times the opportunity to provide complete basic immunization to their children compared to mothers who do not get family support.

This result is in line with research conducted by Mella Roria et.al. (2014) about the Relationship between Family Support and Compliance of Mothers Carrying Out Basic Immunization in Children in Tigabolon Village, Sidamanik Subdistrict, Simalungun Regency in 2014 found that there was a relationship of emotional support for the compliance of mothers carrying out basic immunizations in children, where of the total sample of 52 people, 19 people who expressed good emotional support, 57,9% adhered to basic immunization in children. While of the 33 people who expressed less emotional support, only 21,2% were compliant to carry out basic immunizations. The results of this study are reinforced by the theory put forward by Rock & Dooley (1985) in Kuntjoro (2002) that families play a supportive role as long as

mothers carry out immunizations on their children so that they can achieve optimal levels of welfare. Natural family support is received by a person through social interactions in life spontaneously with people around him in this case family members. <sup>7</sup>

## V. CONCLUSION

Determinants that affect the provision of complete basic immunization in East Kolaka Regency in 2019 are the level of maternal education, vehicle ownership, health facilities where vaccination/immunization, distance to health facilities, services in health facilities, and family support.

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