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## REGRESSION MODELING OF AFTER-BIRTH CHILD HEALTH STATUS TO STUNTING EVENTS IN WAY KANAN DISTRICT, LAMPUNG PROVINCE, INDONESIA

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**Keywords:** Stunting, model, immunization, mother, children

### **Abstract**

*All children have the right to a decent living, including health status, to grow and develop. The government has made various efforts to improve maternal and child health through immunization programs, maternal and child health services and nutrition improvement programs. Several determinants interact with stunting. The health status of children is critical, and infectious diseases are straightforward to transmit. This infection is very contagious and infects the body of malnourished children, and sick children will reduce their appetite. This study aims to explain the effect of modelling the health status of children under two years of age on the incidence of stunting. The descriptive-analytic method uses a case-control design, with the main population in this study being toddlers aged 2-3 years, using multiple logistic regression tests. In the health status of*

*children aged less than two years, the most influential variables were the status of completeness of immunization (OR=104) and the following order of clean living behaviour at the household level (OR=33), complementary feeding (OR= 23), the tradition of leaving children (OR=10), birth weight (OR=9), active in Integrated Healthcare Center (OR=8), knowledge of using MCH handbooks (OR=5), age to stop breastfeeding (OR=4), gestational age (OR=4 ), and length of birth (OR=3). In the model equation, the variable of immunization status is the variable that has the most significant influence on the incidence of stunting. Immunization protects not only individuals but also the broader community through the benefits of herd immunity. All factors related to the health status of children under two years of age and knowledge of mothers during pregnancy are associated with using maternal-child health books and a history of anaemia during pregnancy, so children in Way Kanan have a 99.9% chance of experiencing a reduction in stunting*

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## ORIGINAL ARTICLE

## REGRESSION MODELING OF AFTER-BIRTH CHILD HEALTH STATUS TO STUNTING EVENTS IN WAY KANAN DISTRICT, LAMPUNG PROVINCE, INDONESIA

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## ABSTRACT

All children have the right to a decent living, including their health status, growing and developing. The government has made various efforts to improve maternal and child health through immunization programs, maternal, child health services, and nutrition improvement programs. Several determinants interact with stunting. The health status of children is very important, and infectious diseases are straightforward to transmit. This infection is very contagious and infects the body of malnourished children, and sick children will reduce their appetite. This study case aims to explain the effect of modelling the health status of children under two years old on the incidence of stunting. The descriptive-analytic method uses a case-control design, with the main population in this study being toddlers aged 2-3 years, uses multiple logistic regression tests. In the health status of children aged less than two years old, the most influential variables were the status of completeness of immunization (OR=104) and the following order of clean living behavior at the household level (OR=33), complementary feeding (OR= 23), the tradition of leaving children (OR=10), birth weight (OR=9), active in Integrated Healthcare Center (OR=8), knowledge of using MCH handbooks (OR=5), age to stop breastfeeding (OR=4), gestational age (OR=4 ), and length of birth (OR=3). In the model equation, the variable of immunization status is the variable that has the most significant influence on the incidence of stunting. Immunization protects not only individuals but also the broader community through the benefits of herd immunity. All factors related to the health status of children under two years of age and knowledge of mothers during pregnancy are associated with using maternal-child health books and a history of anemia during pregnancy, so children in Way Kanan have experience with 99.9% chance of reduction in stunting

**Keywords:** stunting, model, immunization, mother, model, children

## INTRODUCTION

All children have the right to a decent living, including health status, for growing and developing<sup>1</sup>. The government has made many efforts to improve maternal and child health, one of them is the immunization program for children's health problems can be resolved. The Public is still distrust of the safety and effectiveness from immunization is one of the factors in decreasing immunization coverage, including socio-economic influences, access to services and doubts about immunization<sup>2</sup>. Children who are not immunized are at risk of contracting certain types of dangerous diseases, because the body does not recognize the incoming virus so it cannot fight that virus, and the virus will make it easier for disease germs to multiply and infect the child's body. Immunity is protection from diseases, especially infectious disease, due to cells, body cells and body organs<sup>3</sup>. That factor greatly cause stunting vary, both directly and indirectly, in general, one

of them is the child's health status<sup>4,5</sup>, including the child's immunization status.

Several determinants interact with each other in the incidence of stunting, diarrhea as one of the main contributors. The incidence of diarrhea in the first month after birth has led to an increase in the prevalence of stunting in age 24 months<sup>6</sup>. Efforts to maintain children's health can be influenced by parenting styles in caring for their children<sup>7</sup>, this condition is very closely related to stunting<sup>8</sup>.

Poor nutritional input during pregnancy can cause intrauterine growth retardation (IUGR) and growth and development<sup>9</sup>. The direct causes of malnutrition are unbalanced food intake and disease infections, under-five children with malnutrition tend to be more susceptible to disease infections, and toddlers who experience infections are vulnerable to nutritional status, infectious diseases will easily spread to children under five with nutritional status<sup>3</sup>. Infectious

diseases such as respiratory infections, skin infections and diarrhoea are common during the rainy season and can be a cause of stunting and the low rainfall that often occurs along the coast can lead to shortages of quality food<sup>10</sup>. Malnutrition and disease lead to poor mental & physical growth<sup>11</sup>.

The good health status of children before and after birth is experienced by children who fail to thrive<sup>12</sup>. Breast milk is the only best food for babies because it has the most complete nutritional composition for the growth and development of babies<sup>13</sup>. Infectious diseases are an important risk factor for stunting in children, including the incidence of respiratory tract infections associated with impaired child growth and development. Similar negative effects are also found for growth and development disorders in children found with worms and diarrhoea, as a contributor to children being stunted and associated with malignancy. nutrient absorption<sup>10</sup>.

The prevalence of stunting and depressed mothers was estimated to be 16.1% and 27.8% in Northern Ghana, and mothers with depression compared with children who were not depressed tended to be younger, in poorer households, and more likely to have babies with low birth weights. Still in a study in Northern Ghana, in a regression model, children of depressed mothers were three times more likely to experience stunting than children of non-depressed mothers<sup>14</sup>. Early and exclusive breastfeeding is the beginning of fulfilling nutrition for children<sup>15</sup> and breastfeeding can optimize the growth and development of babies, and help develop children's intelligence<sup>13</sup>. In Chilinda's research (2021) it shows that mothers can increase their independence to improve nutrition in terms of socio-cultural adaptation found in Malawi, mothers have a role in aspirations for the welfare and prosperity of their household<sup>16</sup>. Lack of parental attention during the harvest season and greater involvement of women in economic sectors such as trade and services can also lead to high stunting rates<sup>10</sup>.

Challenges ahead for preventive interventions stunting must be right on target, in the form of preventing overweight/obesity in children<sup>17</sup>, this is very important for developing policies and programs to improve maternal and child health<sup>18</sup>. Poor mental & physical growth leads to poor performance at school, and poor performance at school leads to reduced capacity of adults to earn, initiate change, and new responding opportunities, reduced capacity of adults<sup>11</sup>. The high incidence of stunting in Way Kanan in 2018 (at above 20%), was the highest in Lampung Province. Implementation of intervention programs has been carried out by the Regional Government of Way Kanan but has

not yet provided impact positive for decline stunting incidents. The incidence of stunting is thought to be related to the health status of children from birth, so analysis is needed to obtain regression modelling of the health status of children after birth on the incidence of stunting. The purpose of this research is to build an easy model to explain the role of child health status after birth to stunting probability.

## METHOD

This research uses a descriptive-analytic method and uses a case-control design. The case-control design used a sample as a case group and a control group. Data collection was used to collect information about the health status of children from birth to 2 years of age.

The main population in this study were toddlers aged 2-3 years and their biological mothers. Mothers under five as respondents obtained primary data information about the health status of their children from birth to the age of 2 years. The sample size formula uses the odds ratio value in previous similar studies to get the sample size<sup>19</sup>. From this formula, the sample size is 247 cases and 247 control groups.

To determine the sample size of respondents based on the proportion of the working area of the Health-Center using the multistage cluster sampling method based on the prevalence of stunting. The working area of the Health Center is grouped into three classes, namely high, medium and low prevalence. Then from each Health Center cluster, 4 Health Centers were taken. The sample of respondents was selected using a simple random sampling method that was adjusted for age between the case and control groups.

The collection was done through direct observation and interviews using a questionnaire. The questionnaire provides answer choices using a Likert answer scale. The coding of the results of data collection uses dichotomous data. Then secondary data was obtained from literature searches of books and journals related to study results and report documents from several agencies, the Health Service and its Networks, regional statistical institutions, district governments and village governments. Multiple logistic regression method using a computer application.

## RESULTS

The health status of children when they were less than 2 years old and the current health status of pregnant women can be seen in Table-1. The information available is that the proportion of

children's health status in stunted and non-stunted children is generally relatively the same except for the weight variable. birth under 2.5 kg (62.3%), physical activity of children under one year old can crawl (67.8%), when under 2 years of vitamin A administration is incomplete (69.2%), status healthy living behavior in good families (66.4%), and initiate early breastfeeding and exclusive breastfeeding (63.6%). Then Table-1 also describes

the current health status of pregnant women in general, having the same proportion except for 4 variables out of 8 variables, namely the knowledge score of using the MCH Handbook below 50 points (60.5%) and not actively checking for pregnancy at the local midwife or doctor (60.7%), thin status on the mother's body mass index during pregnancy (63.8%) and not anxious during pregnancy (64%).

**Table 1a: Distribution of current health status of children and pregnant women based on stunting status**

Variable	Case	%	Control	%	n	%
<b>Current gestational age giving birth (CHS1)</b>						
• Less than 37 weeks	208	88.14%	28	11.86%	236	47.8%
• Age 38-40 weeks	39	15.12%	219	84.88%	258	52.2%
<b>Birth weight in grams (CHS2)</b>						
• at risk of fewer than 2,500 grams	205	66.56%	103	33.44%	308	62.3%
• Weight 2500 - 4000 gr (Normal)	42	22.58%	144	77.42%	186	37.7%
<b>Birth length in cm (CHS3)</b>						
• Not quite from 47.08	142	71.00%	58	29.00%	200	40.5%
• Others from 47.08	105	35.71%	189	64.29%	294	59.5%
<b>Completeness status immunization (CHS4)</b>						
• Not completed	233	81.18%	54	18.82%	287	58.1%
• Finish	14	6.76%	193	93.24%	207	41.9%
<b>history of sick children at the age of 0-2 years (CHS5)</b>						
• Sick almost every month	203	92.69%	16	7.31%	219	44.3%
• Have been sick but not regularly (5-10 times)	44	16.00%	231	84.00%	275	55.7%
<b>state of physical activity of children at the age of 0-2 years (CHS6)</b>						
• Can't crawl	105	66.04%	54	33.96%	159	32.2%
• Can crawl	142	42.39%	193	57.61%	335	67.8%
<b>Administration of vitamin A (CHS7)</b>						
• Supplements are not given	227	66.37%	115	33.63%	342	69.2%
• Given vitamin A capsules	20	13.16%	132	86.84%	152	30.8%
<b>state of appetite when eating children (CHS8)</b>						
• It doesn't always run out	186	75.30%	61	24.70%	247	50.0%
• Always done	61	24.70%	186	75.30%	247	50.0%
<b>Complementary food for breast milk (CHS9)</b>						
• Rarely MP ASI	198	91.67%	18	8.33%	216	43.7%
• Get MP ASI	49	17.63%	229	82.37%	278	56.3%
<b>Clean and Healthy Living Behavior (CHLB) household (CHS10)</b>						
• There are no CHLB criteria	116	69.88%	50	30.12%	166	33.6%
• There is one of CHLB criteria	131	39.94%	197	60.06%	328	66.4%
<b>Age at stopping breastfeeding (CHS11)</b>						
• No Exclusive breastfeeding	224	79.15%	59	20.85%	283	57.3%
• Exclusive breastfeeding	23	10.90%	188	89.10%	211	42.7%
<b>The tradition of leaving it to grandparents (CHS12)</b>						
• Children are raised by grandparents	229	78.42%	63	21.58%	292	59.1%
• Not raised by grandparents	18	8.91%	184	91.09%	202	40.9%
<b>Integrated Healthcare Center activities (CHS13)</b>						
• Not once to Integrated Healthcare Center	212	73.10%	78	26.90%	290	58.7%
• Participate in Integrated Healthcare Center Activities	35	17.16%	169	82.84%	204	41.3%
<b>Initiation of Early Childhood Breastfeeding and Exclusive Breastfeeding (CHS14)</b>						
• No Early Breastfeeding Initiation (EBI)	123	68.33%	57	31.67%	180	36.4%
• Early Breastfeeding Initiation (EBI)	124	39.49%	190	60.51%	314	63.6%
<b>Activities for pregnant women class (PHS1)</b>						
• Not taking classes for pregnant women	159	79.10%	42	20.90%	201	40.7%
• Take a class for pregnant women	88	30.03%	205	69.97%	293	59.3%
<b>Knowledge of using the MCH Handbook (PHS2)</b>						
• Value 0 - 50	215	71.91%	84	28.09%	299	60.5%
• Value 51 -70	32	16.41%	163	83.59%	195	39.5%

**Table 1b: Distribution of current health status of children and pregnant women based on stunting status**

Variable	Case	%	Control	%	n	%
<b>Examination activities during pregnancy (PHS3)</b>						
• No ANC	211	70.33%	89	29.67%	300	60.7%
• ANC	36	18.56%	158	81.44%	194	39.3%
<b>Maternal body mass status index during pregnancy (PHS4)</b>						
• Underweight (< 18.55) Kg/m <sup>2</sup>	230	73.02%	85	26.98%	315	63.8%
• Normal (18.55-25.00) Kg/m <sup>2</sup>	17	9.50%	162	90.50%	179	36.2%
<b>Nutritional status of pregnant women (PHS5)</b>						
• Skinny (80-90%)	130	63.73%	74	36.27%	204	41.3%
• Normal (90 - 110%)	117	40.34%	173	59.66%	290	58.7%
<b>Family history of DM status (PHS6)</b>						
• Have a history of DM	154	75.12%	51	24.88%	205	41.5%
• No history of DM	93	32.18%	196	67.82%	289	58.5%
<b>History of current Hb status pregnant (PHS7)</b>						
• Anaemia	190	65.29%	101	34.71%	291	58.9%
• Regular: 11 gr %	57	28.08%	146	71.92%	203	41.1%
<b>Status anxiety during pregnancy (PHS8)</b>						
• Worried	119	66.85%	59	33.15%	178	36.0%
• Not worried	128	40.51%	188	59.49%	316	64.0%
<b>Total</b>	<b>247</b>	<b>65.29%</b>	<b>247</b>	<b>11.86%</b>	<b>494</b>	<b>100%</b>

The description in table 1 describes the proportion of variables that influence stunting, and so on for multivariate analysis steps are needed to ensure that the research variables are feasible to be included in the analysis multivariate, that is through analysis bivariate with a p-value below 0.25. Based on the results of bivariate analysis, all independent variables can be analyzed by multivariate test, in step 11 of the multiple logistic regression test the results are obtained in Table 2.

The results of the multivariate regression analysis in Table 2 show that the most influential variable information is the completeness of immunization status (OR=104) and sequential life net behavior at the household level (OR=33), provision of complementary feeding (OR=23), the tradition of taking leave child (OR=10), birth weight (OR=9), activity at Integrated Healthcare Center (OR=8), knowledge of using the MCH handbook (OR=5), age at stopping breastfeeding (OR=4), gestational age (OR=4), and birth length (OR=3).

**Table 2: Regression analysis influences child's health age < 2 years and current maternal health pregnant**

Variable	Symbols in Models	Constant	Standard Error	p-value	Exp(B) / OR	OR low lower	OR Upper
Gestational age	CHS1	1,580	0.871	0.070	4.85	0.88	26.77
Birth weight in grams	CHS2	2,290	0.796	0.004	9.88	2.08	46.97
Birth length in cm	CHS3	1,265	0.633	0.046	3.54	1.02	12.26
Immunization completeness status	CHS4	4,649	0.874	0.000	104.53	18.85	579.62
state of children's physical activity at the age of 0-2 years	CHS6	-3,713	1.017	0.000	0.02	0.00	0.18
Breast milk complementary foods	CHS9	3.152	0.932	0.001	23.39	3.76	145.43
CHLB household	CHS10	3,508	0.999	0.000	33.37	4.71	236.30
Age to stop breastfeeding	CHS11	1,603	0.712	0.024	4.97	1.23	20.05
Tradition is left to grandparents	CHS12	2,352	0.786	0.003	10.51	2.25	49.09
Integrated Healthcare Center Activities	CHS13	2.176	0.751	0.004	8.81	2.02	38.37
Knowledge of using the MCH Handbook	PHS2	1678	0.799	0.036	5.35	1.12	25.62
History of current Hb status pregnant	PHS7	1008	0.594	0.090	2.74	0.86	8.77
Constant	C	-12,933	2021	0.000	0.00		

The results of multiple logistic regression analysis must meet several eligibility criteria in forming a

model equation, one of which is the *Hosmer and Lemeshow* Condition test in the last step (11th)

with a -p (sig) value below 0.05. Table 3 contains a summary of the interpretation of the results of the

multiple logistic regression feasibility analysis.

Table 3: Summary of the feasibility interpretation of the multiple logistic regression analysis models

Number	Criteria Analysis Interpretation Regression Logistics	Score	Piece Point	Conclusion
1	Summary Processing Case	Case lost 0	0	The data processing process is fulfilled and not there is data information from the respondent's blank
2	Coding Variable Depends	code = 1 and not stunting = 0	0	Giving code on variables dependent already in accordance
3	Model Coefficient Omnibus Test	The result of step 11 = 0.000	0.05	The model equation results are accepted
4	Iteration History	Initial Log Probability -2: 684,829 - 91,318 =593,511	> Chi table 522592 (DF=471)	Fit Model
5	Models Summary Nagelkerke R	0.932 (93.2%)	The bigger the good	estimate the dependent variable from the independent variable
6	Hosmer and Lemeshow tests	0.652	0.05	the suitability of the hypothesis is built by the empirical
7	Classification table	97.2%	The bigger the better	logistic accuracy test regression test is very ok, close to 100%.

The results of the final logistic analysis through the 7 (seven) criteria for evaluating the logistic regression model conclude that the variables of the health of children and pregnant women affect the incidence of stunting. The completeness of immunization at the age of one year has an effect on the incidence of stunting, which is the biggest influencing variable in this model, and the smallest influencing variable is current birth weight. The results of multiple logistic regression analysis get the equation model contained in Table 3.

**DISCUSSION**

Gestational age is the time since fertilization occurred at the time of birth, calculated from the first day of menstruation and the last menstruation<sup>20</sup>. Gestational age has an effect on the incidence of LBW because the decreasing gestational age of the mother, the less perfect the development of the fetal organs in the womb<sup>21,22</sup>. Gestational age will increase the need for iron, due to physiological changes in the mother and the needs of the fetus, in the first trimester of pregnancy requires iron is 0.8 mg/day, which increases to 7.5 mg/day in late pregnancy, and the increase in inadequate iron needs. Anemia will occur in the third trimester<sup>23,24</sup>. Gestational age in the preterm category has 20 times the risk of having a low birth weight baby compared to gestational age in the term category<sup>25</sup>. The various influences of gestational age on the decline in the health status of the fetus and newborn will have an impact on the next life in the form of stunting

status which can be known when the child is 2 years old. The results of the previous study explained that there was an influence of dietary restrictions or dietary restrictions for pregnant women on the incidence of stunting at the Candi Rejo Health Center in Central Lampung Regency with an Odd Ratio (OR) value of 72.25<sup>26</sup>.

Low birth weight is a long-term condition of a mother with poor nutrition with poor health status and poor pregnancy<sup>27</sup>. Birth weight is also an indicator of survival, growth, term of health and future psychological development of children<sup>28,29</sup>. Pregnant women's nutritional intake is less, body weight is sick, distraction complications and stress can affect fetal growth because it hurts the growth of the placenta so that the transport of nutrients to the fetus is disrupted. Babies with low birth weight are likely to experience stunting in adulthood and are at risk of developing coronary heart disease, coronary heart disease, diabetes, stroke, and hypertension<sup>30</sup>. Low birth weight is associated with the incidence of stunting in children aged 6-23 months in the Sedayu District, Bantul Regency, Yogyakarta, children with a history of birth Low birth weight have a 6 times greater risk of experiencing stunting compared to children with a history of normal birth <sup>28</sup>. Babies born with low weight have proportionally smaller limbs so that the reserves of nutrients in their bodies are very small so they are susceptible to disease, especially infectious diseases, such as hypothermia and resulting in death<sup>31</sup>. Babies with LBW will grow and develop more slowly because



they experience delays in intra-uterine growth since birth. At the next developmental age, growth and development will be slower than babies born normally. LBW babies also experience digestive disorders because their digestive tract has not yet worked to absorb fat and digest protein so the reserves of nutrients in their bodies are not fulfilled. This situation continues if the feeding is not sufficient, then you often experience pain which can cause the child to become short<sup>32</sup>.

Immunization not only protects the individual who receives it but also the community environment, through the benefits of herd immunity<sup>2</sup>. Incomplete immunization of children makes it easier to get late infectious diseases which will worsen the child's nutritional condition, resulting in optimal growth and development disorders<sup>33</sup>. Immunization is the process of giving immunity artificially either by vaccination (active immunization) or by administering immunization to children which plays a role in reducing mortality and immunized children have a lower risk. Provision of timely immunization in children can reduce the likelihood of stunting, and conversely delayed immunization can increase the incidence of stunting<sup>34</sup>. Incomplete immunization can make a

child's immune system weak, so that the child is susceptible to disease infections, in the end, children who contract the disease are at risk of becoming stunted<sup>33</sup>.

Parenting by grandparents affects early childhood because in general the parenting style is permissive and tends to give freedom and minimal reprimands, so it can have a bad impact on children's psychology and in socializing in the environment they have difficulty making friends with friends of their age, which in turn can lead to behavior. children do not develop optimally<sup>35</sup>. In another study, the form of parenting of grandparents that is flexible and under parental control biologically will have an impact on children's good attitudes and behavior, ability to live independently, disciplined, providing opportunities for light activities, with the habit of training children to work, by tips grandparents<sup>36</sup>.

$$\text{Equation stunting probability } \ln \left[ \frac{[P_{\text{Stunting}}=1]}{1-[P_{\text{Stunting}}=1]} \right] = -12.933 + 1.580(KA1) + 2.290(KA2) + 1.265(KA3) + 4.649(KA4) - 3.713(KA6) + 3.152(KA9) + 3.508(KA10) + 1.603(KA11) + 2.352(KA12) + 2.176(KA13) + 1.678(KH2) + 1.008(KH7)$$

Table 4: The simulated probability of stunting for all factors of the health status of children and the health of pregnant women cannot be controlled at this time.

Free of variables and interactions	Coefficient	subject	Model(y)	probability 1 / (1+exp(-y))
Gestational age and circumstances at birth (CHS1)	1,580	1	1.5798	0.999818681 99.982%
Birth weight in grams (CHS2)	2,290	1	2.2903	
Birth length in grams (CHS3)	1,265	1	1.2652	
status immunization (CHS4)	4,649	1	4.6495	
state of physical activity of children at the age of 0-2 years (CHS6)	-3,713	1	-3.7126	
Complementary Feeding (CHS9)	3.152	1	3.1523	
CHLB household (CHS10)	3,508	1	3.5075	
Age at stopping breastfeeding (CHS11)	1,603	1	1.6027	
The tradition of handing over to grandparents (CHS12)	2,352	1	2.3524	
Integrated Healthcare Center activities (CHS13)	2.176	1	2.1759	
Knowledge of using the MCH Handbook (PHS2)	1678	1	1.6777	
History of current Hb status pregnant (PHS7)	1008	1	1.0075	
Constant	-12,933		-12,933	
			8.615073636	

Table 4 shows a simulation of a toddler if all factors are related to the health status of the child when he is under 2 years old and the mother's knowledge during pregnancy is related to the use of the Maternal and Child Health (MCH) book as

well. with a history of anemia during pregnancy, there is a 99.9% chance that children in Way Kanan Regency will be edited. This information is very important for intervention Effective measures to prevent children from stunting are interventions by

controlling the completeness of child immunizations in stages, providing complementary feeding after 6 months and healthy living behavior at home, so the possibility of toddlers becoming stunted is 6%. In the intervention on all variables of the health status of children under 2 years and

the mother's knowledge during pregnancy regarding the use of maternal and child health (MCH) books and a history of anemia during pregnancy, the possibility of toddlers being hampered is 0.0001%.

Table 5: Probability of simulated stunting if all factors of child health status and pregnant women's health care intervened

Free of variables and interactions	Coefficient	subject	Model(y)	probability [1 / (1+exp(-y))]
Gestational age and circumstances at birth (CHS1)	1,580	1	1.5798	0.063313
Birth weight in grams (CHS2)	2,290	1	2.2903	6.331%
Birth length in grams (CHS3)	1,265	1	1.2652	
Status immunization (CHS4)	4,649	0	0.0000	
State of physical activity of children at the age of 0-2 years (CHS6)	-3,713	1	-3.7126	
Complementary Feeding (CHS9)	3.152	0	0.0000	
CHLB household (CHS10)	3,508	0	0.0000	
Age at stopping breastfeeding (CHS11)	1,603	1	1.6027	
Leave tradition (CHS12)	2,352	1	2.3524	
Integrated Healthcare Center activities (CHS13)	2.176	1	2.1759	
Knowledge of using the MCH Handbook (PHS2)	1678	1	1.6777	
History of current Hb status pregnant (PHS7)	1008	1	1.0075	
Constant	-12,933		-12,933	-2.694254

**CONCLUSION**

In the model equation, the variable of immunization status is the variable that has the greatest influence on the incidence of stunting. Immunization not only protects the individual who receives it but also the surrounding community, through the benefits of herd immunity. all factors related to the health status of children under 2 years old and current knowledge of pregnant women regarding the use of maternal and child health books (MCH) and history of anemia during pregnancy, children in Way Kanan district if these factors are controlled so that the probability will be reduced by 99.9%.

This study reinforces the reason that interventions must be carried out simultaneously by cross-sectoral through the policies of the Way Kanan District Government to realize a Stunting Free Indonesia in 2024 and a golden Indonesia in 2045.

**ETHICAL POLICY**

This research has received approval from the ethical review team of the Faculty of Health, Lampung Medical University, Number: 3016/UN26.18/PP.05.02.00/2020, December 14, 2020.

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**CONFLICT OF INTEREST**

No potential conflict of interest was reported.

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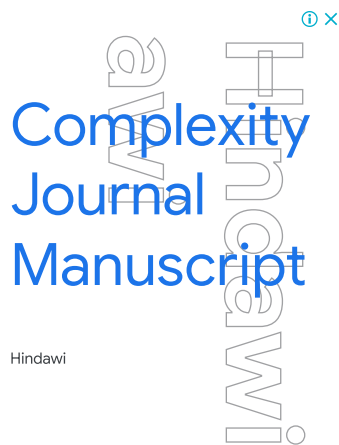
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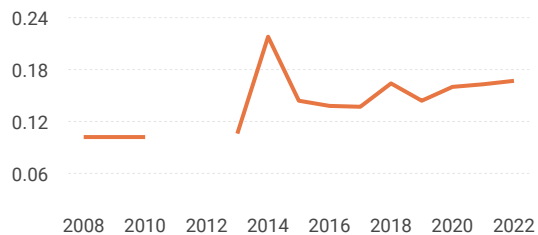
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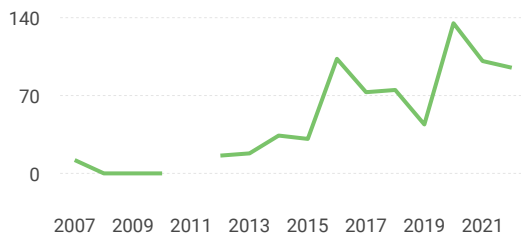
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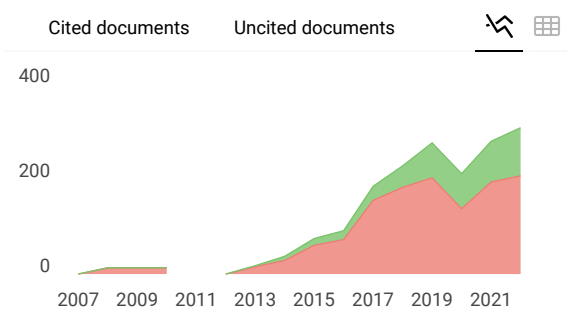
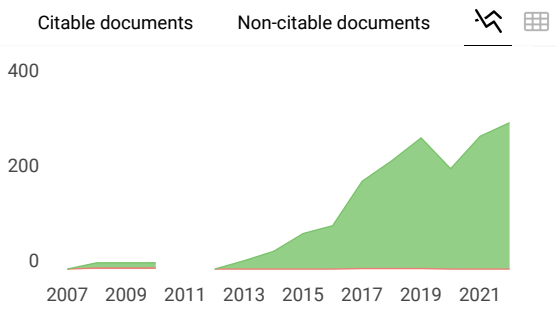
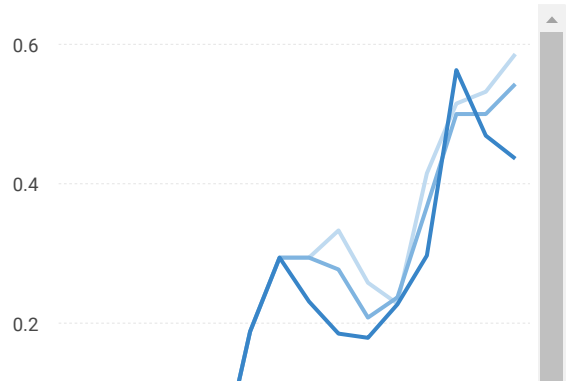
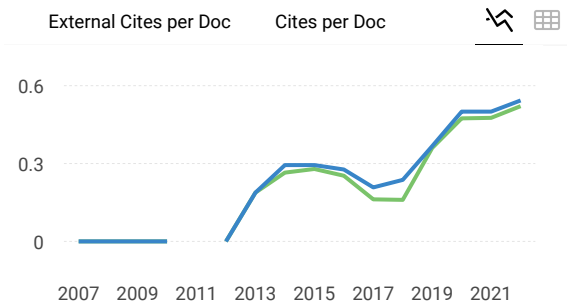
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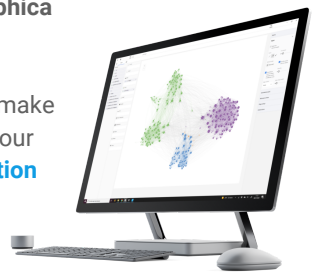
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