Majalah Pembelajaran Geografi
ISSN 2622- 125X Vol.2 No. 2 (2019)
https://jurnal.unej.ac.id/index.php/PGEO

EFFECT OF BALANCE IMMUNIZATION ON INFANT MORTALITY RATE IN INDONESIA

Dwi Lestari, Inti Nur Tirta, Evira Novidariyanti,
Fahmi Arif kurnianto, Fahrudi Akhwan Ikhsan

Email : fahmiarif.fkip@unej.ac.id

Abstract

Infant mortality is a useful indicator not only of the health status of children, but also of the overall population status and economic conditions in which the population resides. Infant mortality not only reflects the magnitude of health problems that are directly responsible for infant mortality, such as diarrhea, respiratory infections, malnutrition, specific infectious diseases and prenatal conditions, but also reflects the level of maternal health, environmental health conditions and general levels of development socioeconomic society. Using secondary data sourced from BPS 2013 and DG of Disease Prevention and Control, Ministry of Health 2017. Data analysis used is product moment correlation to know strength of relation between 2 variables. Calculations we have done using the formula can be known the existing result is -0.537269258. The resulting results of the formula have a strong correlation relationship between IMR and the achievement of complete basic immunization. Proven from the calculation that the achievement of complete basic immunization has a strong influence on infant mortality rate.
Keywords : Infant mortality, health, immunization

1. Introduction

Indonesia belongs to the caterory as a developing country. One of its characteristics is high mortality rate

Table 1.1 Projection of Infant Mortality Rate (IMR) by province, 2017

NO	PROVINCE	IMR 2017
11	Aceh	27
12	North Sumatera	31
13	West Sumatera	30
14	Riau	22
15	Jambi	23

16	South Sumatera	28
17	Bengkulu	30
18	Lampung	25
19	Island of Bangka Belitung	25
21	Island of Riau	26
31	DKI Jakarta	17
32	West Java	18
33	Central Java	22
34	DI Yogyakarta	12
35	East Java	23
36	Banten	27
51	Bali	21
52	West Nusa Tenggara	42
53	East Nusa Tenggara	40
61	West Kalimantan	25
62	Central Kalimantan	35
63	South Kalimantan	33
64	East Kalimantan	14
71	North Sumatera	22
72	Central Sumatera	34
73	South Sumatera	26
74	Southeast Sumatera	24
75	Gorontalo	36
76	West Sulawesi	49
81	Maluku	44
82	North Maluku	35
91	West Papua	44
94	Papua	45
Indonesia		25

The table above is based on data of SDKI91, SDKI94, SDKI97, SDKI2002 / 2003, SDKI2007, and SDKI2012. In this projection, the mortality estimation using the pattern of the IDKI is IMR in 2010. The above may show that the average infant mortality rate in Indonesia is 25. The facts prove that there are still many provinces in Indonesia reaching IMR that exceeds the average of the country Indonesia. Therefore, the infant mortality rate in Indonesia is still quite high

Infant mortality is a useful indicator not only of the health status of children, but also of the overall population status and economic conditions in which the population resides. Infant mortality not only reflects the magnitude of

health problems that are directly responsible for infant mortality, such as diarrhea, respiratory infections, malnutrition, specific infectious diseases and prenatal conditions, but also reflects the level of maternal health, environmental health conditions and general levels of development socioeconomic society. (Mantra, 2003). Therefore, the government seeks to reduce the infant mortality rate.

Child health care efforts are aimed at preparing future generations that are healthy, intelligent, and qualified and to reduce child mortality. Child health care efforts since the fetus is still in the womb, born, after birth, and until the age of 18 years. Immunization is one of the efforts to reduce infant mortality rate. Immunization is considered a significant way to reduce infant mortality, because through immunization this disease can be prevented as early as possible, not only through infants but starting from mothers or prospective mothers, women of childbearing age.

The government has actually provided facilities for immunization can run well and evenly. The facts show that there are still many problems causing uneven immunization. One of the most prominent facts of the baby's own mother. Most mothers do not immunize because they fear that their babies may experience swelling and redness of the skin, fuss and other symptoms after their baby gets immunized like BCG (Winarsih, et al., 2013). Mothers who are worried about the condition of the baby is due to lack of knowledge possessed by mother and mother-maternal education as well as lack of counseling about the importance of immunization given to infants.

This is in accordance with research conducted by Sari, Dewi, et al 2016), which is mother who has good knowledge level, this is influenced by education level and mother age which is classified as productive and mother get information about immunization from various sources. In line with the study (Ashani, 2007) which explains that exogenous and endogenous factors that have a link or influence on infant mortality is one of the immunizations both provided by the mother and baby. The explanation that has been described above is the basis of the author chose the title of Influence Immunization against Infant Mortality Rate.

1.2 Formulation Of The Problem

The formulation of problems that can be formulated are:

1. What is the effect of basic immunization achievement on infant mortality rate?

1.3 Writing Purpose

1. Analyze the effect of basic immunization outcomes on infant mortality

1.4 Variable Operational Definition

Variables can simply be defined characteristics of individuals, objects, events that can be measured quantitatively or qualitatively. The measurement result of a variable can be constant or fixed, it can also change (Nana Sudjana, 1996).

The research variables used in this study consist of dependent variable (bound) and independent variable (free). Indicators applied for each of these variables are:

1. Dependent Variable (Dependent Variable)
   infant mortality rate
2. Free Variable (Independent Variable)
   basic immunization

The operational definition of each variable is:

1. Infant Mortality Rate

Is one of the most important aspects in describing the level of human development in a country in terms of public health. The infant mortality rate is the number of infant deaths under the age of 1, per 1000 live births in a given year. Indicators that affect the high infant mortality rate.

1. Basic Immunization

Indicates the complete immunization of the basic obtained by the baby. 5 complete primary immunizations for infants under 1 year of hepatitis B, BCG, DPT, polio, and measles (MOH 2009). Immunizations obtained by infants have several indicators including, maternal education.

1.5 Death

Death or mortality is one of three components of the demographic process that affect the population structure. The other two components of demographic processes are fertility, and population mobility. The high level of population mortality in a region not only affects population growth, but also a barometer of the high level of public health in the area (Bagus, 2008).

Death is the event of permanent disappearance of life signs, which can occur at any time after the birth of life. Dead never existed if there was no life. While life always begins with the birth of life (live birth) (Good, 2008). Some definitions or terms of death around birth and before. Here distinguishes the events of death that occur in the uterus (intra utrin) and outside the uterus (extra utrin). At the time the fetus is still in the uterus (intra utrin), there are the following death events:

a. Abortion, fetal death before and up to 16 weeks
b. Immatur, fetal mortality between the gestational age above 16 weeks to the age of 28 weeks
c. Premature, fetal death in the womb at age above 28 weeks to time of birth

Furthermore, infant mortality outside the uterus (extra utrin) is distinguished on:

1. Born to death (still berth), sufficient death, time at the time out of the womb, no sign of life
2. Newborn death (neo natal death) is the infant mortality before the age of one month but less than one year
3. Newborn death (post neo natal death) is the death of a baby after the age of one month but less than a month
4. Infant mortality (infant mortality), death after live birth to less than one year old (Good, 2008)

1.5.1 The Concept Of Death

The concept of death needs to be known in order to get the right death data. With the advancement of medical science, it is sometimes difficult to give death and clinical life. According to the concept, there are three vital states each

of which is mutually exclusive, meaning that one situation is not possible along with one of the other circumstances. The three vital states are:

a. Live Birth

Birth of life is, the event of the outcome of the conception of a complete mother's womb regardless of the duration of pregnancy and after the separation occurs, the conception of breath and other signs of life, such as heartbeat, umbilical cord, or muscle movements, without looking at the umbilical cord has been cut or not (Budi, 2007)

b. Death

Death is the permanent loss of all signs of life, which can occur at any time after the birth of life (Budi, 2007).

c. Stillborn

Born to death is the disappearance of life signs from the conception before the conception is removed from the womb of his mother (Budi, 2007).

1.5.2 Mortality

Infant mortality is death occurring at the time the baby is born until one day before the first birthday. From the side of the cause, infant mortality is distinguished by endogenous and exogenous factors. Endogenous infant mortality (neonatal mortality) is the incidence of death occurring in the first month since the baby is born, generally caused by a factor brought about by birth, inherited by the parents at the time of conception or in the mother's condition during pregnancy. While exogenous death (neonatal past death) is infant mortality that occurs between the age of one month or up to one year caused by factors related to environmental influences (Sudariyanto, 2011 in Kusuma, 2012).

1.5.3 Infant Mortality Rate

Infant mortality rate is one important indicator in determining the level of public health because it can describe the health of the population in general. This figure is very sensitive to changes in the level of health and wellbeing. The infant mortality can be defined as death occurring between the time after the baby is born until the infant is not exactly one year old (BPS, 2010).

Infant Mortality Rate (IMR) describes the number of infant deaths less than one year per 1000 live births in a given year. Formulated as follows:

$$AKB = \frac{D_{0-<1th}}{\sum Lahir\ Hidup} x\ K$$

Dimana :

AKB = Infant Mortality Rate (IMR)

$D0-<1th$ = Number of Infant mortality (1 year old) in one particular year in a certain area

$\sum Lahir\ Hidup$ = The number of live births in a given year in a particular area

K = 1000

In other words, this figure illustrates the probability of infant death from birth until the end of its first birthday. IMR is a very useful indicator not only to measure the infant's health status but also the health status of the population as a whole including the economic conditions in which the population resides. In addition, the IMR also reflects the level of maternal health, environmental health conditions and the general level of socio-economic development of the community because the IMR is very sensitive to changes in health and welfare levels of society. During this time, several efforts have been made to suppress Infant Mortality Rate (IMR) by improving health service and the result shows a significant improvement

1.6 Immunization

Immunization comes from immune, immune or resistant. Children immunized are given immunity to a particular disease. The child is immune or resistant to a disease, but not necessarily immune to other diseases. (Notoatmodjo, 2007). Immunization is an attempt to provide immunity to infants and children by entering the vaccine into the body. In order for the body to make anti-substance to stimulate the formation of anti-substance that is inserted into the body through

injection (eg BCG vaccine, DPT and measles) and by mouth (eg polio vaccine), (Hidayat, 2008)

In the Health Act Number 36 Year 2009 stated that every child is entitled to get basic immunization in accordance with the provisions to prevent the occurrence of diseases that can be avoided through immunization and the government must provide complete immunization to every baby and child. Immunization is stipulated in the Minister of Health Regulation No. 42 of 2013. Immunization is an effort to cause / increase a person's immunity actively to a certain disease, so that if one day exposed to the disease will not be sick or just experience minor illness. Some infectious diseases that belong to immunized preventable diseases (PD3I) include tuberculosis, diphtheria, tetanus, hepatitis B, pertussis, measles, polio, meningitis, and pneumonia. of the various dangerous diseases, which may cause disability or death.

Immunization is one of the most cost-effective (inexpensive) health interventions, as it can prevent and reduce the incidence of morbidity, disability and death from PD3I, which is estimated at 2 to 3 million deaths annually. The process of disease travel begins when the virus / bacteria / protozoa / fungus, enter into the body. Any living being that enters the human body will be considered a foreign body by the body or called an antigen. Naturally the immune system will form an anti-substance called antibodies to immobilize antigen (Ministry of Health RI 2017). Immunization program is one effort to provide protection to the population against certain diseases. Immunization programs are given to populations that are considered vulnerable to infectious diseases, namely infants, toddlers, children, women of childbearing age, and pregnant women.

1.6.1 Benefits Of Immunization

According to the Ministry of Health (2004), the benefits of immunization are as follows:

a. For children: preventing suffering caused by illness and possible disability or death.

b. For families: eliminating anxiety and psychological treatment when the child is sick. Encourage family formation if parents are convinced that their child is living a comfortable childhood.
c. For the country: improving the health level, creating a strong nation, and sensible to continue the country's development.

1.6.2 The Purpose Of Immunization

The purpose of immunization is to prevent the occurrence of certain diseases in a person and eliminate certain diseases in a group of people (population) or even eliminate a particular disease from the world. (Ranuh, 2008)

The immunization program aims to reduce morbidity and mortality from diseases that can be prevented by immunization. At present, these diseases are diphtheria, tetanus, whooping cough (pertussis), measles, polio and tuberculosis. (Notoatmodjo, 2003) Immunization program aims to provide immunity to infants in order to prevent the disease and death of infants and children caused by infectious diseases. In general immunization purposes include: (Atikah, 2010)

1. Through immunization, the body is not susceptible to infectious diseases
2. Immunization is very effective in preventing infectious diseases
3. Immunization decreases the number of mordibities (morbidity) and mortality (mortality) in infants

1.6.3 Type Of Immunization

Immunization is divided into two, namely active immunization and passive immunization (Hidayat, 2002).

a. Active immunization is the provision of substances as antigen which is expected to occur an artificial infection process so that the body undergoes a specific immunological reaction that will produce cellular and humoral responses and the resulting memory cells so that when the infection actually occurs then the body can quickly respond.
b. Passive immunization is the administration of a substance (immunoglobulin) produced by a process of infection that can be derived from human or animal plasma used to treat microbes suspected of entering the infected body.

1.6.4 Primary Immunization In Infants

The determination of immunization types is based on expert review and epidemiological analysis of emerging diseases. In Indonesia, immunization programs require that every infant (0-11 months of age) get complete basic immunization consisting of 1 dose of Hepatitis B, 1 dose of BCG, 3 DPT-HB-Hib doses, 4 polio doses, and 1 dose of measles. Of the mandatory complete mandatory immunization, measles has become one of the more prominent forms of immunization, in line with Indonesia's global commitment to participate in the elimination of measles by 2020 by reaching at least 95% coverage coverage in all areas equally. This is related to the reality that measles become one of the main causes of death in infants. Thus the prevention of measles has a significant role in the reduction of under-five mortality rate. The Measles Coverage Trends in Indonesia tends to decline even though it tries to reach the target of 95%. Indonesia has coverage of measles immunization program above 90% since 2008. The year 2016 slightly increased from the year 2015, that is equal to 93,0%. According to the province, there are eleven provinces that have successfully achieved the target of 95%. In the picture below it can be seen that all infants in South Sumatera, Jambi, West Nusa Tenggara and Central Java provinces have been immunized against measles. While the province with the lowest coverage of North Kalimantan is 57.8%, Papua 63.5% and Aceh 73.5%.

1.6.5 Complete Immunization In Infants

The immunization program in infants aims to make every baby get complete basic immunization. The success of a baby in obtaining the basic immunization is measured through a complete basic immunization indicator. The achievement of this indicator in Indonesia in 2016 amounted to 91.58%. This achievement is greater than the achievement in 2015 of 86, 54%. This figure reaches the 2016 Renstra target of 91.5%. Meanwhile, according to province, there are twelve provinces that reach the target of Renstra year 2016. In the picture above can be seen that all infants in South Sumatra Province, DKI Jakarta, Central Java, Jambi, and West Nusa Tenggara have got complete basic immunization. Meanwhile, the provinces with the lowest achievement were North

Kalimantan (56.08%), Papua (59.99%), and Maluku (67.56%) (Kemenkes RI, 2017).

1.6.6 Drop Out Rate DPT / HB1-Measles Immunization Coverage

Basic immunization in infants should be given to children according to their age before the age of one year. In this condition, it is expected the immune system can work optimally. However, under certain conditions some infants do not get complete basic immunization. This group is called the drop out (DO) immunization. Infants who received DPT / HB1 immunization early in immunization, but did not receive measles immunization, were called DPT / HB1-Measles immunization drop out rates. This indicator is obtained by calculating the difference in measles immunization coverage of measles against DPT / HB1 immunization coverage. The rate of DPT / HB1-Measles immunization out in 2016 is 2.4%. This figure is lower than the year 2015 that sebes ar 2.9%. The DPT / HB1-Measles immunization drop out rate shows a downward trend from 2007 to 2016, which assumes more and more infants get complete basic immunization. The downward trend is explained in the following picture. DO rate DPT / HB1-Measles expected not to exceed 5%. The maximum limit has been fulfilled since 2010 until 2016. More detailed data and information on the drop out rate of DPT / HB1-Measles immunization coverage and DPT / HB (1) -DPT / HB (3) (Ministry of Health RI, 2017) .

1.6.7 Village UCI (Universal Child Immunization)

Another measured indicator for assessing the successful implementation of immunization is the Universal Child Immunization (UCI) village / kelurahan. UCI village / kelurahan is a picture of a village where ≥ 80% of the number of babies (0-11 months) in the village / kelurahan have received complete basic immunization. Coverage of UCI villages by province is shown in Figure 5.20. By 2016 there are three provinces with the highest achievement of Bali (100%), DI Yogyakarta (100%), and Central Java at 99.93%. While the lowest achieving provinces are North Kalimanatan (30.69%), West Papua (56.77%) and Papua (61.59%), (Ministry of Health RI, 2017).

1.6.8 Kinds Of Immunization

1) Bacillus Celmette-Guerin Immunization (BCG)

BCG immunization serves to prevent tuberculosis Tuberculosis (TB) caused by a group of bacteria called Mycobacterium tuberculosis complex. In humans, tuberculosis primarily attacks the respiratory system (pulmonary TB), although other organs can also be stricken (spread or extrapulmonary to TB). Mycobacterium tuberculosis is usually transmitted through a person's cough. According to Nufareni (2003), BCG immunization does not prevent TB infection but reduces the risk of severe TB such as TB meningitis or TB billion. Factors that affect the effectiveness of BCG to TB are BCG vaccine differences, environment, genetic factors, nutritional status and other factors such as exposure to ultraviolet light to vaccines.

2) DPT Immunization (Difteri, Pertusis, dan Tetanus)

DPT vaccine (Tetris pertussis Tetanus) is a vaccine consisting of purified diphtheria and tetanus toxoid and inactivated pertussis bacteria (Department of Health, 2006) Diphtheria is a disease caused by Corynebacterium diphtheria bacteria. Differibers are malignant, infectious and invasive especially the upper respiratory tract. Transmission can be due to direct contact with the patient through sneezing or coughing or indirect contact because of food contaminated with diphtheria bacteria. Pertussis is a disease caused by the bacterium Bordetella Pertussis. These germs release toxins that cause the threshold of excitement cough is great and long. Coughing attacks are more frequent at night, coughing occurs consecutively and the end of cough draws a deep breath, usually accompanied by vomiting. Coughing can reach 1-3 months, because itupertusis also called "cough hundred days".

Tetanus is a disease caused by the infection of Clostridium tetani bacteria. This germ is anaerobic, so it can live in an environment where there is no acid (oxygen). Tetanus can attack babies, children and even adults. In infants the transmission is caused by cutting the umbilical cord without a sterile tool or in the traditional way where the cutter is spiked with a traditional herb contaminated with the spores of tetanus germs. These germs are most prevalent in spore horses spreading widely on the ground (Atikah 2010).

3) Measles Immunization

Immunization used to prevent the occurrence of measles in children because the disease is highly contagious. The content of this vaccine is an attenuated virus. The frequency of measles immunization is one time at 9-11 months of age. The method of giving these measles immunizations is given through subcutaneous. Side effects may include rash at the injection site and fever.

4) Hepatitis B Immunization

Is an immunization used to prevent the occurrence of Hepatitis disease whose content is HBsAg in liquid form. The frequency of Hepatitis B immunization is three times. Time of administration at age 0-11 months and given through intra muscular (Hidayat, 2002)

2. The Methods

2.1 Data Collection Technique

Using secondary data sourced from BPS 2013 and DG of Disease Prevention and Control, Ministry of Health 2017.

2.2 Data Analysis Technique

Data analysis used is product moment correlation to know strength of relation between 2 variables

$$r = \frac{n\sum xy - (\sum x).(\sum y)}{\sqrt{[n\sum x^2 - \sum x)^2]\{n\sum y^2 - (\sum y)^2]}}$$

Where :

r : Coefficient of validity

n : The number of subjects

y : Comprative value

$\sum x^2$: The square of the total number of variables x

$\sum y^2$: The square of the total number of variables y

$\sum xy$: The multiplication of the number of variables x and variables y

To conclude the relationship between the two variables above, it is necessary to meet the following criteria, if:

a) 0,00 – 0,199 : correlation is very weak
b) 0,20 – 0,399 : weak correlation
c) 040 – 0,599 : moderate correlation
d) 0,60 – 0,799 : strong correlation
e) 0,80 – 1,0 : very strong correlation
f) Nilai (-) : strong correlation

3. RESULTS AND DISCUSSION

3.1 Results

Table 4.1 IMR Data and Complete Basic Immunization Coverage by Province in 2016

No	PROVINCE	IMR 2017	Coverage of complete basic immunization
1	Papua	45	59.99
2	Maluku	44	67.56
3	Aceh	27	69.11
4	East Nusa Tenggara	40	69.29
5	Gorontalo	36	74.55
6	North Maluku	35	75.3
7	West Sumatera	30	77.57
8	North Sulawesi	22	78.41
9	Southeast Sulawesi	24	79
10	Central Kalimantan	35	80.32
11	West Sulawesi	49	80.81
12	Riau	22	81.7
13	West Kalimantan	25	82.75
14	Bengkulu	30	82.85
15	West Papua	44	83.88

16	Central Sulawesi	34	83.91
17	South Kalimantan	33	84.23
18	Islands Riau	26	85.05
19	East Kalimantan	14	85.77
20	North Sumatera	31	89.2
21	Banten	27	90.29
22	South Sulawesi	26	91.88
23	West java	18	92.81
24	Islands of Bangka Belitung	25	93.99
25	DI Yogyakarta	12	96.39
26	Lampung	25	98.61
27	Java East	23	98.12
28	Bali	21	98.97
29	West Nusa Tenggara	42	100.07
30	Jambi	23	100.83
31	Central Java	22	101.38
32	DKI Jakarta	17	102.82
33	South Sumatera	28	105.25
Indonesia		25	91,58

Calculations we have done using the formula can be known the existing result is -0.537269258. The resulting results of the formula have a strong correlation relationship between IMR and the achievement of complete basic immunization. Proven from the calculation that the achievement of complete basic immunization has a strong influence on infant mortality rate.

3.2 Discussion

Level of correlation between existing IMR with complete immunization coverage, also influence infant mortality rate. IMR of infant mortality in Indonesia in the data above reached 25. This figure indicates that the value or limit of the average value of infant mortality in Indonesia is there are 25. In the table that has been described above there are still many provinces that have not exceeds the averages, which can mean that there are still many or still high infant mortality rates in the province. A total of 33 provinces in Indonesia there are 19 provinces that the value of IMR of infant mortality is still strong enough or still

quite a lot. Data showing a figure above 25 means that in the province the infant mortality can still be classified as high.

Based on the data percentage of comprehensive basic immunization coverage conducted by 33 provinces in Indonesia can be drawn 91.58 which can be labeled as a reference of how that already meet the value and said as an area that has been doing complete basic immunization in the area. The data also proves that there are still many from some provinces that have not been able to fulfill that number. Of the 33 provincial data that there are 21 of them can not reach that number.

The highest data with the province with the highest IMR of infant mortality is 49 in West Sulawesi province. The data with the lowest IMR is only 12 in Yogyakarta Province. Complete basic immunization that exists in fact has a considerable effect on infant mortality rates where immunization should be received by the baby at certain ages, not impossible some babies will die due to lack of complete immunization obtained.

The highest cause of infant and under-five mortality is caused by measles disease. Khotimah (2008), explained that measles is an infectious disease caused by paramixovirus virus. Measles immunization has a major effect on infant mortality that is a problem at this time. Infants who do not get measles immunization tend to be more affected by measles. According to data from WHO 2015 in 2000-2013 out of 146 million child populations, 40 million of them suffer from measles. Of the 481,000 children infected with measles 74% diantranya died. That is why basic immunization needs to be given to infants.

Based on WHO's 2007 global estimate, immunization can prevent approximately 25 million deaths per year from diphtheria, tetanus, pertussis (whooping cough) and measles. Throughout the world, the coverage of polio immunization received by infants with 3 doses of polio vaccine in 2007 was 82% and the coverage of hepatitis B immunization with 3 doses of vaccine was 65%. While the coverage of DPT and measles immunization each 81% and 82% (WHO, 2008). This is one of the reasons why complete immunization is necessary, to reduce infant mortality there needs to be a fairly serious handling of

complete immunization should be received by toddlers. Some parents think enough with 1 dose of polio vaccine or 1 dose of Heptitis B vaccine but the vaccine should be given must be complete done.

From the above data, it can be explained that immunization affects infant mortality due to: first, the lack of maternal education where some mothers assume that complete immunization is not too important to do. They feel that if they have received the first immunization, there is no need for immunization for the second or the next. In fact there are some immunizations to be solved. That is, there are some immunizations such as polio dose immunization should be done 4 times. Rusli, (1996) (Romadhona Permatasari, 2010), Ifa (2019), Pahlevy (2019), Umam (2019), Setyawan (2019), Sari (2018) explains that maternal education needs to be improved to support the smoothness of the acceptance of health programs. Indirectly also will be associated with the level of education of parents, especially mothers. If the mother has an educational background that is higher then automatically the higher the awareness of the parents of the importance of complete immunization in their babies. Second, the encouragement of the family affects the willingness of the mother to provide complete immunization to her child. Soekidjo Notoatmojo (2002), Lestari (2019), Zahroh (2019), Nuriyanto (2019) explained that to realize an action required supporting factors that enable to realize the action. Third, maternal employment status also has an effect on complete basic immunization coverage for infant. A mother's busyness affects the time and schedule of immunizations that should be given to the baby. Not infrequently a mother who is too busy will forget the baby's immunization schedule. Pandji Anoraga (2005) explains that increasing the breadth of employment, increasingly encouraging a mother to work especially in the private sector. This has a negative impact on coaching and baby care. Fourth, the mother's knowledge is also very influential on the completeness of immunization in the can. Soekidjo Notoatmodjo (2003), explained that there is a relationship between mother's knowledge of the completeness of immunization received by the baby, this is because knowledge is a very important domain for the formation of one's actions.

Some parents think that immunization need not be too frequent to do because some think that after their baby is given vaccine immunization that happened is the opposite. Their baby has a fever because of the effects of the vaccine that has been given. In fact, after the administration of the vaccine, the resulting fever effect is not a negative effect of giving the vaccine, but rather the form of antibody resistance to form a powerful new antibody or resistant to viral attacks that have nearly the same strength. Automatically antibodies can recognize viruses coming in so that the body can respond immediately to it well. Other causes other than due to lack of complete immunization given the role of parents who are mostly the role of mothers who should be aware in this case. The role of the mother in addition to educating the child after birth, the mother must also have sufficient knowledge that can be used in everyday life that is the knowledge of the importance of complete immunization that must be obtained by the child.

4. Conclusion

The achievement of basic immunization in infant is very influential to infant mortality rate in Indonesia. The results show that the value -0.537269258 which means that the correlation between the achievement of basic immunization in infants and infant mortality rate is very strong. Many factors that cause complete basic immunization are uneven across provinces. Maternal education, mother's knowledge, mother's working hours, support around are some of the factors that influence the achievement of immunization in a province.

BIBLIOGRAPHY

Anoraga, Pandji. 2005. *Psikologi Kerja*. Jakarta : Rineka Cipta.

Arinta Kusuma Wandira dan Rachmah Indawati. 2012. Faktor Penyebab Kematian Bayi Di Kabupaten Sidoarjo. *Jurnal Biometrika dan Kependudukan*. Departemen Biostatistika dan Kependudukan FKM UNAIR Fakultas Kesehatan Masyarakat Iniversitas Airlangga. I(1) 33-42 Agustus

Ashani, Tri Arifah. 2007. *Kematian Bayi Menurut Karakteristik Demografi dan Sosial Ekonomi Rumah Tangga di Propinsi Jawa Barat (Analisis data kor sdki 2007*

Badan Perencanaan Pembangunan Nasional. 2013. *Proyeksi Penduduk Indonesia Indonesia Population Projection*. Jakarta: BPS

Badan Pusat Statistik. 2010

Bagoes Mantra, Ida. 2003. *Demografi Umum*. Yogyakarta: Pustaka Pelajar.

Departemen Kesehatan RI. 2004. *Sistem Kesehatan Nasional 2004*. Jakarta.

Depkes RI. 2009. *Perjalanan Menuju Indonesia Sehat 2010*. Departemen Kesehatan RI, Jakarta

Departemen Kesehatan RI. 2010

Hidayat , A. Azis Alimul, 2008. *Ilmu Kesehatan Anak*. Jakarta : Salemba Medika

Kementerian Kesehatan RI. 2017. *Profil Kesehatan Indonesia 2016*. Jakarta: Kementerian Kesehatan RI. 2017

Kementerian Kesehatan Republik Indonesia. 2013. Peraturan Menteri Kesehatan Republik Indonesia Nomor 42 Tahun 2013 tentang Penyelenggaraan Imunisasi. Jakarta : Departemen Kesehatan

Khotimah H. 2008. *Hubungan Antara Usia, Status Gizi, dan Status Imunisasi dengan Kejadian Campak Pada Balita*. Akbid La Tansa Mashiro. *Jurnal Obstretika Scientia*. ISSN 2337-6120.

Manuaba Ida Bagus. 2008. *Ilmu Kebidanan, Kandungan dan KB*. Jakarta: EGC.

Nana Sudjana. 1996. *Metode Statistika*. Bandung: Tarsito

Notoatmodjo, Soekidjo. 2002. *Metodologi Penelitian Kesehatan*. Jakarta : Rineka Cipta.

Notoatmodjo, Soekidjo. 2003. *Ilmu Kesehatan Masyarakat Prisip-Prisip Dasar*. Jakarta: Rineka Cipta

Notoatmodjo, Soekidjo. 2007. *Promosi Kesehatan dan Ilmu Perilaku*. Jakarta: Rineka Cipta.

.Nurfraeni (2003). *Status Imunisasi BCG dan Faktor Lain yang Mempengaruhi Terjadinya Meningitis Tuberkola*.

Proverawati, Atikah. 2010. *Imunisasi dan Vaksinasi.* Jakarta: Nuha Offset

Permatasari, Romadhona. 2010. *Hubungan Tingkat Pendidikan Formal Ibu Terhadap Kelengkapan Imunisasi Pada Anak Usia 2 Tahun Di Kelurahan Semanggi Surakarta. Surakarta*. Fakultas Kedokteran Universitas Muhammadiyah Surakarta.

Ranuh, I.G.N. 2008. *Pedoman Imunisasi di Indonesia*. Edisi ketiga.Jakarta: Badan Penerbit Ikatan Dokter Anak Indonesia

Rusli S. 1996. *Pengantar Ilmu Kependudukan, edisi Revisi*. LP3ES. Jakarta

Sari, Dewi Nur Intan dkk. 2016. HUBUNGAN PENGETAHUAN IBU TENTANG IMUNISASI DASAR DENGAN KELENGKAPAN IMUNISASI DASAR BAYI DI WILAYAH KERJA PUSKESMAS BENDO KABUPATEN MAGETAN. Fakultas Kedokteran Universitas Muhammadiyah Surakarta. *Jurnal Biomedika.* VIII(2)

Sedarmayanti dan Hidayat, 2002. *Metodologi Penelitian*. Bandung: Mandar Maju.

Undang Undang Nomor 36 Tahun 2009

Utomo, Budi, 2007. Tantangan Pencapaian MilleniumDevelopment Goal Bidang Kesehatan di Indonesia. *Jurnal Nasional Kesehatan Masyarakat*, Juni

Winarsih, Sri dkk. 2013. Hubungan Peran Orang Tua Dalam Pemberian Imunisasi Dasar dengan Status Imunisasi Bayi di Desa Wilayah Kerja Puskesmas Dringu Kabupaten P.robolinggo. *Jurnal Ilmu Keperawatan*. Ilmu Keperawatan Fakultas Keperawatan Universitas Brawijaya. I(2)

World Health Organization. 2008. *'Neonatal and Perinatal Mortality, Regional and Global Estimates'*. World Health Organization

IFA, Hoday et al. ANALISIS SOSIAL EKONOMI TERHADAP TINGKAT KESEJAHTERAAN MASYARAKAT TENGGER GUNUNG BROMO.**MAJALAH PEMBELAJARAN GEOGRAFI**, [S.l.], v. 2, n. 1, p. 169-175, june 2019. ISSN 2622-125X. Available at: <https://jurnal.unej.ac.id/index.php/PGEO/article/view/12305>. Date accessed: 12 aug. 2019.

PAHLEVY, Fahrizal Novan; APRIYANTO, Bejo; ASTUTIK, Sri. KARAKTERISTIK SOSIAL EKONOMI MASYARAKAT DAERAH WISATA BROMO SEBAGAI PENGEMBANGAN KESEJAHTERAAN HIDUP. **MAJALAH PEMBELAJARAN GEOGRAFI**, [S.l.], v. 2, n. 1, p. 172-189, june 2019. ISSN 2622-125X. Available at: <https://jurnal.unej.ac.id/index.php/PGEO/article/view/12177>. Date accessed: 12 aug. 2019.

HARYANTI, Titik Umaiyah. PERANAN PANTAI DALAM KONDISI SOSIAL EKONOMI MASYARAKAT DISEKITAR PANTAI BENTAR KABUPATEN PROBOLINGGO JAWA TIMUR.**MAJALAH PEMBELAJARAN GEOGRAFI**, [S.l.], v. 1, n. 1, p. 12-16, aug. 2018. ISSN 2622-125X. Available at: <https://jurnal.unej.ac.id/index.php/PGEO/article/view/8336>. Date accessed: 12 aug. 2019.

UMAM, Muhammad Fikri; ALHIDAYAH, Yazid; FAUZIYAH, Rita. ANALISIS MATERIAL ENDAPAN VULKAN GUNUNG SEMERU KABUPATEN LUMAJANG. **MAJALAH PEMBELAJARAN GEOGRAFI**, [S.l.], v. 2, n. 1, p. 92-98, june 2019. ISSN 2622-125X. Available at: <https://jurnal.unej.ac.id/index.php/PGEO/article/view/11522>. Date accessed: 12 aug. 2019.

SETYAWAN, Muhammad Alif; APRIYANTO, Bejo; ASTUTIK, Sri. ANALISIS KARAKTERISTIK ENDAPAN MARINE DAN PENGARUHNYA BAGI SEKTOR PERTANIAN DAN PERAIRAN DI PESISIR SELATAN PANTAI PANCER KECAMATAN PUGER KABUPATEN JEMBER JAWA TIMUR. **MAJALAH PEMBELAJARAN GEOGRAFI**, [S.l.], v. 2, n. 1, p. 141-154, june 2019. ISSN 2622-125X. Available at: <https://jurnal.unej.ac.id/index.php/PGEO/article/view/11760>. Date accessed: 12 aug. 2019.

KURNIANTO, Fahmi Arif et al. THE ENVIRONMENT ANALYSIS OF POPULATION GROWTH, UNEMPLOYMENT, AND POVERTY LEVEL IN MAESAN DISTRICT BONDOWOSO REGENCY. **Geosfera Indonesia**, [S.l.], v. 3, n. 2, p. 113-121, aug. 2018. ISSN 2614-8528. Available at: <https://jurnal.unej.ac.id/index.php/GEOSI/article/view/8439>. Date accessed: 12 aug. 2019. doi: https://doi.org/10.19184/geosi.v3i2.8439.

SARI, Eva Kurnia; PRAMESTY, Dinda Ayu. THE EFFECT OF VEHICLES INTENSITY IN SUMBERSARI JEMBER REGENCY. **Geosfera Indonesia**, [S.l.], v. 3, n. 3, p. 50-58, jan. 2019. ISSN 2614-8528. Available at: <https://jurnal.unej.ac.id/index.php/GEOSI/article/view/9300>. Date accessed: 12 aug. 2019. doi: https://doi.org/10.19184/geosi.v3i3.9300.

LESTARI, Dwi et al. ANALISIS FENOMENA GEOGRAFI FISIK PADA PENGUKURAN PROSES DAN HASIL PROSES BENTANG ALAM JAWA TENGAH. **MAJALAH PEMBELAJARAN GEOGRAFI**, [S.l.], v. 2, n. 1, p. 110-118, june 2019. ISSN 2622-125X. Available at: <https://jurnal.unej.ac.id/index.php/PGEO/article/view/11626>. Date accessed: 12 aug. 2019.

ZAHROH, Faidatuz; ELFIANI, Vira; H, Arya Bagas. ASPEK SOSIAL DAERAH KARST PUGER DALAM PRESPEKTIF EKONOMI. **MAJALAH PEMBELAJARAN GEOGRAFI**, [S.l.], v. 2, n. 1, p. 155-160, june 2019. ISSN 2622-125X. Available at: <https://jurnal.unej.ac.id/index.php/PGEO/article/view/11780>. Date accessed: 12 aug. 2019.

NURIYANTO, Muhammad Zaid; FIRMANSYAH, Fahrul Agil; PRASETYONO, Ica. ANALISIS PERUBAHAN BENTANG GEOMORFOLOGI PANTAI BENTAR KABUPATEN PROBOLINGGO.**MAJALAH PEMBELAJARAN GEOGRAFI**, [S.l.], v. 2, n. 1, p. 99-109, june 2019. ISSN 2622-125X. Available at: <https://jurnal.unej.ac.id/index.php/PGEO/article/view/11523>. Date accessed: 12 aug. 2019.