

THE EFFECT OF HEALTHY BALANCE OF INFANT MORTALITY RATE

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Abstract

In Indonesia the number of infant mortality rate is still high. The mortality rate is a sensitive indicator of the state of health status in a community. Health problems that can directly affect infant mortality, maternal and child health, economic and social conditions, residential areas, etc. In each province the number of infant mortality varies. Usually every year the number of numbers can be increased from the previous figure. The condition of each environment will affect the health of the surrounding community. To improve public health it is necessary to consider the basic human needs to obtain a healthy and comfortable environment. Such as providing clean water, food, and a clean and comfortable place to live. That way can reduce infant mortality rate which is currently still quite high. Below is the data of Infant Mortality Rate from each Province in Indonesia that is equal to and above average. Data collection technique using secondary data sourced from BPS and komenkes. Data analysis technique data analysis used is product moment correlation to know strength of relation between 2 variables. Based on data we collected from the Central Bureau of Statistics and the Ministry of Health, the death toll in some areas is still very high. Also the lack of healthy regional governance is one of the factors of high infant mortality rate. From the data that has been calculated using correlation can yield a number of -0.536742675 where if the result minus (-) then shows a strong relationship between two variables. It proves that the relationship between infant mortality and healthy area is strong. In

addition, healthy regional governance can also show the high infant mortality rate.

Keyword : social conditions, health status, mortality rate

1. Introduction

In Indonesia the number of infant mortality rate is still high. The mortality rate is a sensitive indicator of the state of health status in a community. Health problems that can directly affect infant mortality, maternal and child health, economic and social conditions, residential areas, etc. In each province the number of infant mortality varies. Usually every year the number of numbers can be increased from the previous figure.

The condition of each environment will affect the health of the surrounding community. To improve public health it is necessary to consider the basic human needs to obtain a healthy and comfortable environment. Such as providing clean water, food, and a clean and comfortable place to live. That way can reduce infant mortality rate which is currently still quite high. Below is the data of Infant Mortality Rate from each Province in Indonesia that is equal to and above average.

Table 1.1 Projection of Infant Mortality Rate by 2017

Numb.	Provincial Name	IMR 2017
1	Aceh	27
2	North Sumatra	31
3	West Sumatra	30
4	South Sumatra	28
5	Bengkulu	30
5	Lampung	25
6	The islands of bangka belitung	25
7	The islands of Riau	26

8	Banten	27
9	NTB	42
10	NTT	40
11	West Kalimantan	25
12	Central Kalimantan	25
13	South Kalimantan	33
14	Central Sulawesi	34
15	South Sulawesi	26
16	Gorontalo	36
17	West Sulawesi	49
18	Maluku	44
19	Northern Maluku	35
20	West Papua	44
21	Papua	45
Average		25

Viewed in the table above, there are 21 Provinces from 33 Provinces in Indonesia that still have an above average infant mortality rate. Public health can be seen from the area where he lived. If the area where he lives or the surrounding environment clean, beautiful, and comfortable then it can reduce infant mortality in Indonesia.

Table 1.2 Percentage of Regencies / Municipalities Organizing Healthy Area Regions 2016

Numb.	Provincial Name	Presentase (%)
1	Aceh	26,9
2	North Sumatra	51,52
3	West Sumatra	100

4	South Sumatra	82,35
5	Bengkulu	80
5	Lampung	60
6	The islands of Bangka Belitung	100
7	The islands of Riau	91,67
8	Banten	75
9	NTB	100
10	NTT	31,82
11	West Kalimantan	57,14
12	Central Kalimantan	14,29
13	South Kalimantan	76,92
14	Central Sulawesi	46,15
15	South Sulawesi	100
16	Gorontalo	100
17	West Sulawesi	66,67
18	Maluku	27,27
19	Northern Maluku	20
20	West Papua	0
21	Papua	3,45
Average		68,9

Can be seen from the table above, in 2016 there are several provinces that already have a healthy area structure up to 100%. But not a few are also in the figure of 100%. However, by 2017 in the 100% province, infant mortality is still high. And in provinces where the figure is still low percentage requires a healthy regional design.

This research raises the problem of the influence of the regional planning on infant mortality in Indonesia which aims to find out more detail about the problem

and to know the solution to solve the problem. Because the infant mortality rate in Indonesia is quite high and need further treatment so that infant mortality rate in Indonesia can be reduced. The role of government and society needs to work together simultaneously for the handling work optimally.

As one of the factors that can affect public health, healthy governance is very important. In the order of healthy areas is expected society can maintain the cleanliness of the surrounding environment. So as not detected germs - germs that can menimbulakn various diseases. With a clean, safe, comfortable and healthy area is expected to reduce the high number of infant deaths in various provinces.

This study is very interesting to study. Because from here we can know one of the factors causing high infant mortality rate in Indonesia. With the influence of a clean, healthy, safe and comfortable area design will cause a good impact. The purpose of this study is to analyze the importance of clean and healthy regional order to infant mortality rate.

1.2 Research Objectives

The purpose of this study was to analyze the effect of healthy regional governance on infant mortality rate in Indonesia.

1.3 Operational Definition

The operational definition is the determination of the contract or properties to be studied so as to be a measurable variable. The operational definition describes the particular way in which to research and operate the con- text, making it possible for other researchers to replicate measurements in the same way or develop better ways of measuring constants. (Sugiono, 2014)

- **Dependent Variable**

The dependent variable is a variable that can be influenced by other variables or it can be interpreted that variable has dependency from other variables and marked with letter (Y) to facilitate the researcher in identifying. The dependent

variable in question is an acceptable price variable. The dependent variable in this study is infant mortality rate.

1. Infant mortality rate

Figures indicating the number of infant deaths 0 years from every 1000 live births in a given year or can be said also as the probability of a baby dies before reaching the age of one year (expressed as per thousand live births).

Infant mortality is an important indicator to reflect the state of health status in a society, as newborns are very sensitive to the environmental conditions in which the baby's parents live and are closely related to the parents' social status. The progress made in the field of prevention and eradication of various causes of death will be clearly reflected in the decreasing level of IMR. Thus infant mortality is a sensitive benchmark of all intervention efforts undertaken by the government especially in the health sector

Indicators causing infant mortality ie Pneumonia and diarrhea which is an infectious disease that became the main cause of infant mortality in Indonesia with more than 50 thousand children under the age of the disease. Other causes of newborn deaths are shortness of breath and infection. Other indicators of infant mortality are:

1. Latin-illiterate mother and number, mother married at age under 16 and marital status of married mother. It reflects the unfavorable circumstances of the mother's social behavior and environment.
2. The presence of inadequate water facilities and lack of family jamban facilities. Reflects the inadequate health of the family's physical environment.

3. Still lack of families who check, weigh and get immunizations for babies and toddlers. Reflecting the low ability of the population to utilize the available health facilities.
4. Remote distance of family residence with nearest health facility. Reflecting that coverage and health activities performed by local puskesmas are still limited.

- Independent Variable

The independent variable is a variable that can not be influenced by other variables and is marked with the letter X to facilitate the researcher in identifying. The independent variable in the intention is the variable of merit price. The independent variable in this study is the cause of the high infant mortality rate.

1. Healthy Regions

Healthy area is a condition of clean, comfortable, safe and healthy area for the community, through the improvement of a potential with integrated activities and agreed by the community, business group and government. To welcome the healthy governance can organize various activities through community empowerment and through forums facilitated by the government. Forum is a place for people to channel their aspirations and participate. Forum plays a role in determining the direction, regional development planning that integrates various aspects, so as to create a clean, comfortable, safe and healthy environment to be inhabited by its citizens. An indicator of healthy governance is a clean house, not a slum, families who keep each other clean, and a healthy lifestyle.

1.3 Dead

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. High low mortality rates in a region not only affect population growth, but also a barometer of the high level of public health in the area.

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).

1.3.1 Baby Death

(Mathematics & Udayana, 2012) Infant mortality rate is a very useful indicator to know the health status of children and economic conditions of the population of a region. One way that can be done to reduce infant mortality is to know the factors-causes. (Ratna L. Budiarmo, 1987) The infant mortality rate can reflect health problems that directly affect infant mortality, including maternal and infant health services, socioeconomic conditions and so on.

(Abdiana, 2015) Infant Mortality Rate (IMR) includes the number of infant deaths in the first 28 days of life per 1000 live births. From the side of the cause, infant mortality there are two kinds of endogenous and exogenous. Endogenous infant mortality or neonatal mortality is caused by factors brought by the child at birth, obtained from the parents at the time of conception. Saifuddin opinion, the baby's death carried by the baby from birth is asphyxia. Exogenous infant mortality or post-neonatal mortality is caused by factors related to external environmental influences.

(Budiarmo, 1983) Reduction of mortality rate is one of the goals of health development policy, among others reducing infant and under-five mortality rate. In the preparation of measures of health efforts to reduce the mortality rate, to know

what disease is the main cause of death. (Stairs, Provinces, & West, 2007) Infant Mortality Rate (IMR) in Indonesia is still high compared to many other countries. Recorded in 1994 the IMR in Indonesia which reached 57 deaths per 1,000 live births fell to 46 deaths per 1,000 live births in 1997, and then fell again to 35 deaths per 1,000 births in 2002. Data from 2007, from 1,000 live births, 34 babies die before the age of 1 year.

(Arinta Kusuma Wandira & Rachmah Indawati, 2012) More than 50% of infant deaths have been identified, babies who die are premature babies. Infant mortality caused by the condition of the baby itself, was not separated from the condition of the mother during pregnancy, causing premature infants. The majority of maternal activity during pregnancy is heavy work and information obtained during antenatal care is unclear and incomplete. On the other hand the physical condition of the mother that accompanies premature infant mortality due to the mother taking the drug, weak content, multiple pregnancy, and insufficient nutrition. The demographic characteristics of the accompanying mother include maternal age at the time of pregnancy, parity and distance of birth which is at risk for pregnancy. Infant mortality that is suspected due to congenital abnormalities, can be seen that the baby's mother has a risk to its contents. Among babies born premature with twin births, infants who died had very small jaws so that breast milk given can not be swallowed smoothly, in addition the baby is getting formula milk from the hospital. But this can not be proven exactly what causes and congenital abnormalities themselves. Judging from the maternal health history, the time to give birth to blood pressure increases, and the baby's heart condition begins to weaken, and the birth is done by cesarean section. Thus, the possibility of these factors can cause the baby with birth asphyxia and cause death in infants.

1.3.2 Infant death events that occur in the uterus and outside the uterus

1. In the womb, namely:

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

1.3.3 Factors causing infant death

1. The mother factor is that in a safe age for pregnancy with sufficient parity there is a phenomenon behind the occurrence of a disease that indirectly affects the condition of the baby, one of which is a past mother's health history (eg allergies, hypertension, etc.) and family history (eg hypertension, diabetes, history of multiple breeds, etc.). (Arinta Kusuma Wandira & Rachmah Indawati, 2012)
2. Factors outside the mother's condition during pregnancy are likely to caffect the condition of the baby, including physical burden, family conflicts, economic problems, and lack of attention and affection from the family. On the one hand, many babies are born prematurely and even LBW. (Arinta Kusuma Wandira & Rachmah Indawati, 2012)

With a birth spacing of less than 2 years, the physical and maternal health of the mother still needs enough rest and there is a possibility that the mother is still breastfeeding. As for the background of why pregnant women with a distance of less than 2 years, including the husband wants to have more offspring and the history of abortion. This is in line with research results in Naragwal, Northern India. These results indicate that neonatal death and infant mortality is highest when birth spacing is less than 1 year (Istiarti, 2000).

Information relating to pregnancy care is needed by all pregnant women and their families. Most of the education level of high school graduates. The phenomenon found in the field associated with the level of education is the child who was born is the first child owned by the mother <20 years of age and ideal age (21-34 years). Although education is quite high, when viewed by age, the likelihood of maternal knowledge about pregnancy is still very low and not enough time to seek service as much as possible. So the mother is less attention to his condition during pregnancy.

Nearly half of infant deaths are experienced in underprivileged communities. Thus the ability of purchasing power and consumption for the mother during pregnancy is less fulfilled. However, when the antenatal examination the majority of pregnancy checks on a midwife or village midwife. Because they use jampersal. A mother's habit that pregnancy is a common thing has a low education history and a low economy. So these factors are indirectly suspected to affect pregnancy, labor and postpartum.

Double pregnancy or twin pregnancy is a pregnancy with two or more fetuses. The condition of mothers who have multiple pregnancies with a past mother's health history, such as hypertension and family history, such as a history of multiple breeds, may pose a risk to the baby they conceive. Also found in multiple pregnancies there are breech born infants and congenital abnormalities.

In addition, the weight of one twin fetus pregnancy averaged <2500 gr and prematurely. These things are thought to cause death in infants.

Adequate nutritional needs are absolutely necessary by pregnant women to be able to meet the nutritional needs for growth and development of the baby it contains and the physical preparation of the mother to deal with childbirth safely. Findings in the community that they are more concerned with tastes by ignoring the food they consume, such as the mother's favorite ice tea, the pleasure of eating salty foods. So that the intake of nutrients for babies contained very less and can be bad for the baby to be born.

In addition to diet associated with the lifestyle of today's society, it turns out there are some other lifestyle is quite detrimental to the health of a pregnant woman is a habit of staying up. The habit of staying up late by the mother can reduce the rest time to the mother and baby it contains. This condition is not good for a pregnant woman. Such conditions are likely for pregnant women to give birth to infants who have not enough months (premature babies) and can also cause death in infants due to low birth weight and followed by conditions of unhealthy infants.

Breastfeeding should be done after the baby is born (within 30 minutes after the baby is born) because the suction power at that time is strongest to stimulate further breastfeeding (Kamila, 2005). In the case of infant mortality most babies are not breastfed. This is due to breast milk that has not come out at all when the baby is born, milk is produced very smoothly but the baby did not get breastfed, and the baby get a mixture of formula milk from the hospital.

The cause of breast milk that can not come out is suspected because the baby is born prematurely so that the physical and psychological conditions can affect the expenditure of breast milk, mothers are sick, depressed mothers, anxiety is a problem, the baby's mouth is small and lack of support from his husband or

family in breastfeeding the baby. So the milk that produced less smoothly or even can not come out at all.

The pattern of baby care that includes breastfeeding and breast milk in infants, on the results of the study showed that infants who get breast milk with low or high education level results are not much different. At the mother's level of education, whether low or high, does not guarantee that mother's knowledge of parenting patterns is good enough. On the other hand the information provided by health workers around pregnancy, especially about breast milk is unclear and incomplete.

1.4 Understanding Healthy Area

(Hasan Almutahar, 2014) Clean and healthy living behavior in the household is an effort to empower household members to know, willing and able to practice clean and healthy living behavior and play an active role in the health movement in the community. The number of healthy mothers to be an indicator of public health to improve the quality of social behavior of pregnant women and childbirth. A healthy paradigm of community behavior, meaning that all sectors of development should take into account also the health sector. It should primarily contribute positively to the development of healthy behaviors and environments. In a macro, healthy paradigm means that health development focuses on promoting social behavior without overriding curative and rehabilitative efforts.

Environmental health conditions have long been recognized can affect human health living in it. Efforts to improve people's health are deemed necessary to consider the basic human need to obtain a safe and healthy environment, namely an environment that provides safe water, food and safe housing where people can live in peace. (Supraptini, Tin Afifah, 2006), Sari (2018), Lestari (2019), Nuriyanto (2019), Zahroh (2019).

There is a difference in mortality rates according to environmental health conditions in urban and rural areas. In general the better the health condition of the environment then the lower the death rate. (Supraptini, Tin Afifah, 2006)

2. Methods

2.1 Data collection technique

Using secondary data sourced from BPS and komenkes.

2.2 Data analysis technique

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

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

Dimana :

r : The coefficient of validity

n : Number of subjects

y : Value of comparison

$\sum x^2$: 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 total number of variables x and y variables

To know the relationship between two variables above, required criteria as follows, if:

- a) 0,00 – 0,199 the correlation relationship is very weak.
- b) 0,20 – 0,399 the correlation relationship is weak.
- c) 0,40 – 0,599 the correlation is moderate.
- d) 0,60 – 0,799 strong correlation relationship.

e) 0,80 – 1,0 the correlation relationship is very strong.

3. RESULTS AND DISCUSSION

3.1 Results

Based on data we collected from the Central Bureau of Statistics and the Ministry of Health, the death toll in some areas is still very high. Also the lack of healthy regional governance is one of the factors of high infant mortality rate.

Table 4.1 Results of IMR calculations by Percentage (%)

Numb.	Provincial Name	Presentase (%)	IMR
1.	DI Yogyakarta	100	12
2.	Est Kalimntan	90	14
3.	DKI Jakarta	100	17
4.	West Java	100	18
5.	Bali	100	21
6.	Central Java	100	22
7.	Riau	91,67	22
8.	North Sulawesi	80	22
9.	Est Java	100	23
10.	Jambi	100	23
11.	Southeast Sulawesi	52,94	24
12.	West Kalimantan	57,14	25
13.	Central Kalimantan	14,29	25
14.	The islands of Bangka Belitung	100	25
15.	Lampung	60	25
16.	The islands of Riau	91,67	26
17.	South Sulawesi	100	26

18.	Aceh	26,9	27
19.	Banten	75	27
20.	South Sumatera	82,35	28
21.	Bengkulu	80	30
22.	West Sumatra	100	30
23.	North Sumatra	51,52	31
24.	South Kalimantan	76,92	33
25.	Central Sulawesi	46,15	34
26.	Northern Maluku	20	35
27.	Gorontalo	100	36
28.	NTT	31,82	40
29.	NTB	100	42
30.	Maluku	27,27	44
31.	West Papua	0	44
32.	Papua	3,45	45
33.	West Sulawesi	66,67	49
Average		68,9	25
Result of Correlation Calculation		-0,536742675	

From the above data that has been calculated using correlation can yield a number of -0.536742675 where if the result minus (-) then shows a strong relationship between two variables. It proves that the relationship between infant mortality and healthy area is strong. In addition, healthy regional governance can also show the high infant mortality rate.

3.2 Discussion

From the research results show that the results of correlation calculations that produce numbers that include a moderate correlation. Where between infant mortality rates are associated with healthy governance. So healthy regional governance can also show the high infant mortality rate. If a mother lives in an area where the area is not clean or unhealthy then it will affect her baby and get into infant mortality rate.

Environmental factors have an impact on child mortality where child mortality is a mirror of environmental health conditions. (Supraptini, Tin Afifah, 2006), Ifa (2019), Haryanti (2018), Pahlevy (2019), Umam (2019), Setyawan (2019), Kurnianto (2019) The results of the study suggest that healthy governance is very influential on infant mortality in Indonesia. If fewer healthy areas exist in Indonesia then the chances of infant mortality is very high. Not infrequently in mothers who are pregnant mostly do not apply a healthy lifestyle that will affect the mother itself and the baby. If the mother implements a healthy lifestyle and maintains cleanliness around her, the chances of her baby's death are very small. Conversely, if the mother does not apply a healthy lifestyle and do not pay attention to cleanliness, then the chances of infant mortality is very high.

3.2.1 Slum areas

Slums are dirty areas, have no source of clean water, uninhabitable, unhealthy, irregular buildings, very high population density, and unqualified infrastructure facilities. Slums are usually located on the outskirts of the city, such as under a bridge. Not a few are also on the edge of the river.

People who live in areas that belong to slum areas, may be often affected by the disease. The diseases that attack the bodies of the residents who live in the slums due to factors from food, clean water, and hygiene.

A pregnant woman who lives in a shabby place most likely his diet is not awake. The cleanliness of his life may also be lacking. That's why the mother who is pregnant does not take care of the baby's health that is being contained. They still do

the habits they always do when they are not pregnant. For example by eating unhealthy foods and often around people who are smoking.

A pregnant mother is particularly vulnerable to anything. For example, there is a mother who lives in a slum area and is pregnant, a child may be able to have a sickness or a defect in suffering or may also die because what is eaten by the mother is not necessarily clean and what is inhaled by the mother also not necessarily clean. So, give a beautiful place, a decent place, a clean place, a healthy meal if there is a mother who is pregnant. Because what the mother doing what will happen to the child later on. The infant mortality rate also affects the slum area.

3.2.2 Healthy Area

Healthy areas are structured, away from pollution, where there is healthy food, the availability of clean water with sufficient quantities, a clean and comfortable environment, a place worthy of inhabited by humans. Healthy areas are usually rarely attacked by disease.

People living in healthy areas usually live always keep the cleanliness. There may be some of them who do not maintain cleanliness so that usually their homes look dirty and dirty. But the majority of the population always apply cleanliness to their homes and neighborhoods.

A pregnant woman who lives in a relatively healthy area of infant mortality rate is very small. Compared to pregnant women who live in slums. Because usually pregnant women who live in healthy areas always maintain their diet, avoid pollution, and maintain cleanliness. So the chances of mother and baby exposed to the disease is very minimal.

The environment is very influential on the people who live nearby. Not infrequently, usually the head of the RT or the head of the RW in a region held a consecrated work to clean up the dirt - dirt that could become a den of disease. But the hygiene of the houses depends on every homeowner. If the owner of the house is

a person who always maintain cleanliness, then the house will look clean, beautiful, comfortable and healthy. But if the owner of the house is a lazy person, and does not like to keep clean, then his home will look dirty, unhealthy, bleak, and uncomfortable. All depends on each individual.

4. Finisher

4.1 Conclusions

The results of our research can be concluded that the regional design is very influential on infant mortality in Indonesia. So we expect the Government to look back on villages where the area is already categorized as a slum village. Slum areas are not good for pregnant moms. What Mom ate and breathed would have an effect on her baby. The infant mortality rate will increase. So the government should be able to reduce infant mortality rate that is influenced by healthy governance. Environmental conditions are categorized good and healthy in Indonesia to reduce the infant mortality rate.

4.2 Suggestions

- The government should pay more attention to areas that have not been included in healthy areas. Then immediately tackled to become a healthy area. So that people who live in it can feel comfort, cleanliness and avoid the disease.
- Pregnant women should always keep clean, no matter he lives in a healthy area or a slum area. Because the health and hygiene of the mother is very influential on the baby they contain. It should also keep the diet to avoid various diseases, also can reduce the chances of death of the baby it contains. Preferably a pregnant mother avoids smokers, and vehicle pollution. Because it will affect the baby it contains.

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