

# Analysis Of Risk Factor Stunting For The Toddler Isano Mbias Sub District Tanah Miring District Merauke Regency – Papuan Province Year 2022

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**Abstract:** *Stunting is a condition that fails to grow (children below five years old) due to chronic malnutrition, so that the child is pendek untuk usianya. Factors directly influenced by birth weight, infection, breastfeeding exclusively and immunization. Factors not directly influenced by family income, education and sanitation. This research to Of Risk Factor Stunting For The Toddler Isano Mbias Sub District Tanah Miring District Merauke Regency – Papuan Province Year 2022.*

*This research is descriptive analytic with a case control approach. Population is all news in Kampung Isano Mbias District Tanah Miring with a sample size of 100 news ie 50 cases and 50 controls. Data was obtained using a questionnaire and analyzed using chi square, odds ratio and binari logistic.*

*The results of the research showed that the factors that are related to the risk of stunting in Kampung Isano Mbias District Tanah Miring Regency Merauke are income (p-value 0.027; OR = 2.68 (1,191-6,032), sanitation (p-value 0.000; OR = 11 (3,952-30,614); BBLR (p-value 0,035 <  $\alpha$  (0,05); OR = 9,33 (1,121-77,70); ASI (p-value 0,001; OR = 4,148 (1,798-9,573) , immunization (p-value 0,000; OR = 7,250 (2,827-18,594), infectious disease (p-value 0,043 <  $\alpha$  (0,05); OR = 2,495 (1,105-5,629) The dominant factor with the occurrence of stunting in news in Kampung Isano Mbias District Tanah Miring Regency Merauke is sanitation.*

**Keyword:** *Stunting, Toddler, Risk Factor's*

## I. INTRODUCTION

Stunting is a condition of failure to thrive in toddlers (children under five years) due to chronic malnutrition, so that children are short for their age. Malnutrition occurs since the baby is in the womb and early after the baby is born, but the stunting condition only appears after the baby is 2 years old. Short (stunted) and very short (severely stunted) toddlers are toddlers with body length (PB/U) or height (TB/U) according

to age compared to the WHOMGRS (Multicentre Growth Reference Study) standard. Meanwhile, the definition of stunting according to the Ministry of Health is a child under five with a z-score of less than -2SD/standard deviation (stunted) and less than -3SD (severely stunted). (Ministry of Health RI, 2018).

The incidence of short toddlers or commonly called stunting is one of the nutritional problems experienced by toddlers in the world today. In 2017, around 150.8 million

children under five in the world experienced stunting by 22.2%. However, this figure has decreased when compared to the stunting rate in 2000, which was 32.6%. In 2017, more than half of stunted children under five came from Asia (55%), while more than a third (39%) came from Africa. Data on the prevalence of stunting under-fives collected by the World Health Organization (WHO), Indonesia is included in the third country with the highest prevalence in the Southeast Asia/South-East Asia Regional (SEAR) region. The average prevalence of stunting under five in Indonesia in 2005-2017 was 36.4% (Kemenkes RI, 2018).

According to WHO, the stunting prevalence limit in an area is 20%. The results of the 2013 and 2018 Basic Health Research from all provinces in Indonesia nationally showed that the prevalence of stunting decreased from 37.2% to 30.8%. Although it has decreased, it is still far from the WHO limit. In 2018, 100 cities/districts in Indonesia became a priority for stunting handling (Risksedas, 2018).

Risksedas in 2018 showed that the stunting rate (dwarf children) in Papua was still high, at 32.9 percent. Merauke Regency has a stunting rate of 9% of the total target of 22,976 children under five. In Tanah Miring Public Health Center, the total target of toddlers is 2008 and stunting toddlers are 180 children (8.9%), LBW 18 cases (0.8, %), complete basic immunizations 333 (16%), infectious diseases (HIV in toddlers / less from 5 years as many as 1 case (0.04%), diarrhea 580 (29%). The factors that cause stunting are very many including the level of mother's education affecting the incidence of stunting, children born to educated parents tend not to experience stunting compared to with children born to parents with low levels of education (Akombidkk, 2017). This is supported by research conducted by Haile which states that children born to parents with higher education tend to be easier to receive health education during pregnancy, for example in the importance of meeting nutritional needs during pregnancy and exclusive breastfeeding for 6 months (Haile, 2016).

Based on the annual report on the nutritional status of toddlers in the e-PPGBM application in 2018, the prevalence of stunting was 5.3%, in 2019 it was 7.1% and in 2020, data on the prevalence of stunting under five in Merauke district was 9.6%. This figure is increasing when compared to the prevalence of stunting in 2019. The prevalence of stunting in 2019 has not been able to describe the actual prevalence of stunting under five due to limitations in the implementation of the measurement of children under five in 2019. Therefore, in 2020 the implementation of measurements is prepared as well as possible to obtain measurement results. of good quality by ensuring the use of standardized measuring instruments, trained officers and supervision to puskesmas from the district at the time of posyandu implementation. In general, the measurement of stunting in 2020 is better when compared to 2019. The prevalence of stunting increased to 9.6% of the total children under five in Merauke district which was 22,976 but only 53.79% (12,360) of children under five were present at the posyandu in 2020 along with increasing nutrition surveillance in posyandu.

Exclusive breastfeeding for less than six months is also a factor that causes stunting. A study conducted in Nepal stated that children aged 0-23 months had a significantly lower risk

of stunting, compared to children aged > 23 months. This is due to the protection of breast milk obtained (Tiwari et al, 2014).

Economic status also significantly affects the incidence of stunting in children aged 6-60 months, children with families with low economic status tend to get less nutritional intake (Tiwari, 2014). Other research shows that children's health depends on the socioeconomic status of the household (Akombi, 2017).

Merauke Regency has 20 Districts. Each has a village in its working area. Tanah Miring District has 14 villages in its working area, is the working area of the Tanah Miring Health Center and is a focus location for stunting handling in 2021. One of the villages with a high prevalence of stunting is Izano Mbias village with stunting prevalence reaching 31% (65 Toddlers) of the total target 209 Toddlers in the village.

The purpose of this study was to analyze the risk factors for stunting in children under five in Isano Mbias Village, Tanah Miring District, Merauke Regency.

## II. SUBJECT AND RESEARCH METHODS

This research is descriptive analytic with a case control approach. Population is all news in Kampung Kampung Isano Mbias District Tanah Miring with a sample size of 100 news ie 50 cases and 50 controls. Data was obtained using a questionnaire and analyzed using chi square, odds ratio and binari logistic.

## III. RESULTS AND DISCUSSION

### A. RELATIONSHIP BETWEEN MATERNAL FAMILY INCOME AND STUNTING IN CHILDREN UNDER FIVE

Low economic status is considered to have a dominant influence on the incidence of underweight and stunting in children. Parents with adequate family income will have the ability to provide all the primary and secondary needs of the child. Families with good economic status also have access to better health services (Soetjningsih, 2017). Children in families with low economic status tend to consume less food in terms of quantity, quality, and variety. High economic status makes a person choose and buy nutritious and varied food (Nugroho, 2021).

The results of the study obtained that 46% of family income was in the less category as measured by the average income from the BPS 2022 of Rp. 2,436,395. People with low incomes tend to buy more types of food that have more carbohydrate content than protein foods, because these types of food are cheaper and in large quantities (Trisnawati, 2016). This also affects the purchasing power of the community, families with less income, the purchasing power of certain types of food is also low, in contrast to families with sufficient or high income, purchasing power will also be high so that nutritional needs are met.

The results of statistical tests showed that there was a relationship between maternal income and the incidence of

stunting in children under five in Isano Mbias Village, Tanah Miring District. Mothers with low family incomes have a 2.68 times higher chance of stunting in toddlers than mothers with low family incomes.

Research in line with Setiawan's research (2018) reveals that the level of family income has a significant value with the incidence of stunting in children under five. In Aini's research (2018), it is revealed that the level of family income is at risk of 5,385 times with the incidence of stunting

According to a survey conducted by Musheiguza (2021), differences in the distribution of wealth index (average contribution > 84.7%) and maternal school years (average contribution > 22.4%) have a positive impact on the incidence of stunting. Differences in the wealth index and maternal education have increased the contribution to the incidence of stunting, to reduce stunting in the poor community requires initiatives that must begin in the distribution of social services including maternal and reproductive education for women of childbearing age, water and health facilities in remote areas.

The results of the study in the stunting case group were 58% with low family income. This shows that low family income has a risk in fulfilling nutritional intake in the family. According to Palino (2016), if the family income is only mediocre while the number of family members is large, the distribution and adequacy of food in the family is not guaranteed, then this family can be called a vulnerable family, because their nutritional needs are almost never fulfilled, thus disease continues to lurk. Per capita income is a risk factor for stunting. Poverty that lasts for a long time can result in households not being able to meet their food needs in good quantity and quality (Nisa, 2019).

According to Larasati (2018), adequate family income will support the behavior of family members to obtain more adequate family health services. This includes health services obtained during pregnancy. This is because if a person is malnourished, it will directly cause loss of work productivity due to physical deficiency, decreased cognitive function which will affect the level of education and the family's economic level.

The results of the study in the stunting case group were 42% with high family income. This shows that mothers with low incomes do not always have children with stunting. This is because if families with low incomes are able to manage nutritious food with simple and inexpensive ingredients, the baby's growth will also be good. High income is not fully spent on basic food needs, but for other needs. A high level of income does not necessarily guarantee good nutritional status for children under five, because the level of income is not necessarily allocated enough for food purposes.

The researcher argues that family income is related to the ability of the household to meet the needs of life, both primary, secondary, and tertiary. High family income makes it easier to meet the needs of life, on the contrary, low family income has more difficulty in meeting the necessities of life. Low income will affect the quality and quantity of food consumed by the family but depends on the mother's knowledge in processing food. In addition, another factor is that toddlers who have fewer family members are not necessarily free from stunting. Because it could be a factor in the distribution of food that is not fair, it can also result in the

toddler getting a less amount of food, so that his nutritional intake is also lacking. In addition, wrong parenting patterns such as getting older children to get more food or nutritional intake compared to younger children (toddlers) can also be one of the factors that affect the high number of stunting events in toddlers who actually come from families. small.

Low income causes the food obtained will usually be less varied and in little quantity, especially in foods that function for children's growth as a source of protein, vitamins, and minerals, thereby increasing the risk of malnutrition. These limitations will increase the risk of a toddler experiencing stunting. Low income levels and weak purchasing power make it possible to overcome eating habits in certain ways that hinder effective nutrition improvement especially for their children.

## B. RELATIONSHIP OF MOTHER'S EDUCATION WITH STUNTING INCIDENCE IN TODDLERS

Education is a process of changing attitudes and behavior of a person or group of people in an effort to mature humans through teaching and training efforts (Notoatmodjo, 2018). Mothers who are well educated will make decisions that will improve the nutrition and health of their children and tend to have good nutritional knowledge as well. Low maternal education is the highest risk factor for stunting compared to other risk factors (Yusdarif, 2017).

The results showed that 62% of mothers in Isano Mbias Village, Tanah Miring District, Merauke Regency had a high level of education. The results of the chi statistical test showed that there was a relationship between maternal education and the incidence of stunting in children under five in Isano Mbias Village, Tanah Miring District. from the results of the odd ratio test that education is a protective factor with the incidence of stunting. This means that the knowledge factor is more dominant in influencing the occurrence of stunting where the education factor is only a supporting factor for a person in receiving information about stunting in toddlers.

The results of this study are in line with the group of stunting cases, there are 40% with low education and 60% with higher education. This means that a person's education does not have a direct impact on the incidence of stunting but rather from sources of information about child care including intake and processing of nutrition in children under five and prevention of infectious diseases in children. So that mothers who have low education but are exposed to good sources of information can behave well in providing nutritional intake and caring for children under five.

The results of this study are in line with Nisa's research (2019) that education has an effect on the incidence of stunting in toddlers. Research conducted in Nepal also states that children born to educated parents are less likely to suffer from stunting than children who have uneducated parents. This is supported by research conducted by Haile which states that children born to parents who have higher education tend to be easier to receive health education during pregnancy, for example in the importance of meeting nutritional needs during pregnancy and exclusive breastfeeding for 6 months (Haile, 2003). 2016).

Researchers argue that education is also something that can bring someone to have or achieve the broadest insight and knowledge. People who have higher education will have broader insight and knowledge when compared to people who have lower education.

Higher education levels need to be supported by good information about preventing stunting in toddlers, because higher education will make it easier to better understand how to educate children and direct children in education as well as in providing balanced nutritional food so that it can support their growth and development. In getting information about good nutrition knowledge that comes from providing information intentionally, for example in counseling or from experience, both direct and indirect experience. The lack of sources of information obtained by mothers about stunting makes education meaningless with the incidence of stunting.

### C. RELATIONSHIP OF SANITATION WITH STUNTING INCIDENCE IN TODDLERS

Sanitation conditions, access to clean water and the family environment have an important role in the health of family members. If the water obtained is not clean and sanitation is not good, it will cause family members around it to be susceptible to disease. This is especially true for infants and children whose immune systems are not as strong as adults. The factors analyzed in this section are final waste disposal, clean water sources, defecation sites (BAB), ventilation and the position of livestock cages (Supariasa, 2019).

The results of the study were obtained in 64% of respondents in Isano Mbias Village, Tanah Miring District with poor sanitation conditions. Most people do not have latrines and defecate in rivers or streams and bushes in open areas. In addition, the condition of the waste water disposal facilities is open and does not flow smoothly and more waste disposal is burned in the yard or at the back of the house. This condition causes pollution causing ARI and diarrhea

The use of clean water in Isano Mbias Village, Tanah Miring District, Merauks Regency mostly comes from wells and rivers. There is no PDAM water management in the village. So it does not meet the requirements of healthy water. Water that does not meet the requirements contains a lot of *E. coli* and *salmonella typhii* bacteria as the cause of diarrhea and typhoid (Notoatmodjo, 2018).

In addition, the answers to the sewerage sewer questionnaire (SPAL) did not meet the requirements. SPAL that does not meet the requirements can be a risk for children to experience growth inhibition this is because SPAL that does not meet the requirements or is not managed properly can cause puddles and unpleasant odors so that it becomes a medium / breeding ground for disease germs and can pollute water quality caused by construction. clean water facilities that do not meet the requirements such as diarrheal diseases, ARI or worms that can affect the condition of the toddler's body in the process of nutritional intake.

Poor environmental sanitation conditions allow the occurrence of various types of diseases, including diarrhea, worms, and gastrointestinal infections. If the child suffers from a gastrointestinal infection, the absorption of nutrients

will be disrupted which causes nutritional deficiencies. A person who lacks nutrients will be susceptible to disease, and growth will be disrupted (Supariasa, 2019).

The results showed that there was a relationship between sanitation and maternal environment with the incidence of stunting in toddlers in Isano Mbias Village, Tanah Miring District. The results of the OR value show that poor environmental sanitation has an 11 times higher chance of stunting in toddlers than mothers with good environmental sanitation.

This study is in line with research by Mayasari (2022) in South Lampung Regency which found that sanitation was related to stunting, including sewerage, latrines, clean water and waste management.

The causes of stunting according to the World Health Organization (WHO) are caused by direct or indirect factors, where factors can indirectly be caused by water, sanitation and environmental factors as the cause of stunting (Lamid, 2015). Access to clean water and poor sanitation facilities can increase the incidence of infectious diseases which can divert energy for growth to the body's resistance to infection, nutrients are difficult to absorb by the body and stunted growth. Poor environmental sanitation factors including inadequate access to clean water, use of unhealthy latrine facilities and poor hand washing hygiene behavior contribute to the increase in infectious diseases such as diarrhea, Environmental Enteric Dysfunction (EED), intestinal worms. These conditions can cause linear growth disorders and can increase mortality in toddlers (Olo, 2020).

The existence of a relationship between the use of clean water, use of latrines and waste disposal with the incidence of stunting can be caused by the impact of low income or socio-economic conditions. From these conditions, it is expected that the community can manage their household sanitation well so that it does not become a breeding ground for disease seeds and does not become an intermediary medium for the spread of a disease.

### D. RELATIONSHIP UNDERWIGHT BABY NEW BORN WITH STUNTING INCIDENCE TO TODDLER

Low Birth Weight (LBW) is a newborn with a birth weight of less than 2,500 grams. LBW can not only occur in premature babies, but also in term babies who experience growth retardation during pregnancy. In 1961 by WHO all newborns with a birth weight of less than 2500 grams were called low birth weight babies (WHO, 2018).

The results showed that there was a relationship between LBW and the incidence of stunting in toddlers in Isano Mbias Village, Tanah Miring District. The results of the OR value are interpreted that toddlers born with LBW have a 9.33 times higher chance of stunting than toddlers with normal birth weight. In the stunting case group, there were people (16%) with low birth weight.

This study is in line with research by Sagita (2022) who found that LBW is a factor associated with stunting. The causes of LBW in general are multifactorial. Toddlers born with LBW have a greater risk of experiencing developmental and growth disorders in childhood. Children up to the age of 2 years with a history of LBW have a risk of experiencing



growth disorders and will continue in the first 5 years of life if it is not balanced with more stimulation. Premature and low birth weight babies who can survive in the first 2 years of life have a risk of malnutrition and stunting (Dewi & Widari, 2018).

The results of the study were found in normal born babies with stunting incidence as much as 84%. This shows that the condition of the community is still low in providing nutritional intake to infants and toddlers, so that babies born with LBW are more at risk of stunting. It was found in Hapsari's research (2018) that the highest incidence of stunting was in children with low birth weight and low socioeconomic status. The level of parental education will affect parents' knowledge regarding nutrition and childcare patterns, where inappropriate parenting will increase the risk of stunting. LBW children and lack of nutritional intake will experience growth failure at an early age to adolescence and subsequent malnutrition (Rahman, 2016).

Researchers argue that the proportion of infants with low birth weight is an indicator of various public health problems, including long-term maternal malnutrition, poor individual health status, and poor health care during pregnancy. In tackling the problem of LBW, optimal support is needed to improve the nutritional status of the mother even before conception, because education and support related to nutrition and counseling, especially during pregnancy, can increase birth weight which is important for child growth. In addition, nutrition education for infants is very important so that toddlers can achieve optimal growth and development.

#### E. THE RELATIONSHIP OF EXCLUSIVE BREASTFEEDING WITH STUNTING INCIDENCES IN TODDLERS

Exclusive breastfeeding is useful in protecting infants from infection and can meet the nutritional needs of infants up to 6 months of age (WHO, 2020). Lack of nutrition in children due to not getting exclusive breastfeeding will cause growth disorders in children that lead to stunting (Maulidiana, 2021).

The results showed that there was a relationship between exclusive breastfeeding and the incidence of stunting in toddlers in Isano Mbias Village, Tanah Miring District, Merauke Regency. The results of the OR value showed that infants who were not exclusively breastfed had a 4,148 higher chance of stunting than those who were exclusively breastfed. In the stunting case group there were 35 people (70%).

Suboptimal breastfeeding and complementary feeding based on adequate quantity, quality and variation are closely related and contribute to stunting (WHO, 2014). The risk of experiencing stunting is 5 times higher in children who are not exclusively breastfed than children who are exclusively breastfed (Maulidiana, 2021). A child really needs nutritional intake with adequate quantity and quality so that children can achieve optimal growth (Arianti, 2019).

The results showed that 30% of infants who were exclusively breastfed experienced stunting. This shows that exclusive breastfeeding can reduce the risk of stunting. However, only breastfeeding for 6 months can lead to stunting due to the lack of children getting complementary foods after 6 months of age.

Hadi's research (2021) found that the risk of stunting was reduced by 20% in infants who were exclusively breastfed in low household economic status compared to those who did not receive exclusive breastfeeding. The most common reasons for giving food other than breast milk to children are the mother's perception of hungry and fussy children and mothers who are not always there to give breast milk. However, the probability of experiencing stunting is also high in children who only get breast milk after the age of 6 months compared to children who get solid food since the age of 6 months (Rachmi, 2016).

The benefits of exclusive breastfeeding for babies include complete nutrition, increase body power, increase mental and emotional intelligence that is stable and spiritually mature followed by good social development, easy to digest and absorb, has a composition of fat, carbohydrates, calories, protein and vitamins, protection infectious diseases, allergy protection because breast milk contains antibodies, stimulates intelligence and nerves, improves health and intelligence optimally (Mufdlilah, 2017).

Babies who are not exclusively breastfed in Isano Mbias Village, Tanah Miring District, Merauke Regency, some children are given bananas, liquid porridge and formula milk. This will have an impact on the baby's digestive tract. According to Rahuni's research (2019), early complementary feeding can increase the risk of stunting because babies' digestive tracts are not yet perfect, so they are more susceptible to infectious diseases such as diarrhea and ARI.

Giving complementary foods too early, especially before the age of 4 months, is associated with an increased risk of gastrointestinal disease, which can lead to stunted growth, micro-nutrient deficiencies, and susceptibility to various infectious diseases in the first two years of life (Kuchenbecker, 2015). According to Handayani's research (2020) children who have infectious diseases have a 2.2 times more risk of becoming stunted compared to toddlers who do not have a history of infection. Diarrhea is also a cause of malnutrition and vice versa. Locitasari's research (2015) stated that infants who received formula milk had a 5 times greater risk of experiencing poor growth in infants aged 0-6 months compared to infants who were breastfed.

Research has the opinion that breast milk is a nutritional intake that is in accordance with the needs that will help the growth and development of children. Babies who do not get enough breast milk and are given MP-ASI early mean that they have poor nutritional intake and can cause malnutrition because the child has digestive tract disorders so that it interferes with nutritional intake for the body's needs in an effort to optimal growth and development.

#### F. RELATIONSHIP BETWEEN IMMUNIZATION AND STUNTING IN TODDLERS

Immunization is a way to provide immunity to a person actively against infectious diseases. Immunization is a way to actively improve a person's health against an antigen, so that when a child is exposed to a similar antigen in the future, disease will never occur (Kemenkes RI, 2016).

The results showed that there was a relationship between immunization and the incidence of stunting in toddlers in

Isano Mbias Village, Tanah Miring District. The results of the OR value are interpreted that infants who are not fully immunized have a chance of stunting 7,250 times higher than those who are fully immunized. In the stunting case group there were 58% incomplete immunizations. This study is in line with previous research by Noorhasanah (2020) and Sartika (2021) who found that complete immunization had an effect on the incidence of diarrhea.

Immunization is a way to provide immunity to a person actively against infectious diseases. The purpose of immunization is to reduce morbidity and disability and death from vaccine-preventable diseases. Immune effects obtained from immunization are needed, especially in children early age which is the age susceptible to disease, the impact of frequent and early disease is poor nutrition.

The results showed that 42% of toddlers who experienced stunting in Isano Mbias Village, Tanah Miring District were found to be fully immunized. This is because even though the toddler's immunizations are complete, it does not mean that they are free from stunting because there are several other factors that can cause stunting including exclusive breastfeeding, poor sanitation due to the absence of latrines, stagnant water channels, open trash cans and an unclean environment, income parents and Low Birth Weight (LBW).

According to researchers, immunization is to maintain the immunity of toddlers into adulthood. Complete basic immunization is a mandatory immunization that must be given to toddlers. In the MCH handbook, most of the toddlers have complete immunization status, but there are some toddlers who incomplete immunization status. This is because toddlers who are not immunized and toddlers who are referred to the IMCI room so that in the following month they get a new immunization and last month's immunization was missed. There are also toddlers whose immunizations are not on schedule, such as the BCG vaccine which should be given in the second month but given in the fourth month. Giving immunizations to toddlers, especially when they are still toddlers, is very important, that's because if toddlers are given immunizations, it can increase their immune system. If toddlers are not immunized from infancy, they can be susceptible to infectious diseases, lack of appetite and impaired absorption of nutrients which will result in higher nutritional needs of toddlers. The need for macro and micro nutrients is very high at the age of toddlers in the first 2 years of life to support the rapid growth phase (Sagita, 2022).

#### G. RELATIONSHIP OF INFECTIOUS DISEASES WITH STUNTING INCIDENCE IN TODDLERS

Infectious diseases can reduce food intake, interfere with nutrient absorption, cause direct loss of nutrients and increase metabolic needs (Aridiyah, 2015).

The results showed that there was a relationship between infectious diseases and the incidence of stunting in toddlers in Isano Mbias Village, Tanah Miring District. The results of the OR value showed that toddlers with a history of infectious diseases had a 2,495 times higher chance of stunting than toddlers with no history of infectious diseases. In the stunting case group, 68% of children under five had a history of infectious disease.

This study supports previous research by Sutriyawan (2019) in the work area of the Citarip Health Center, Bandung City, proving that there is a relationship between a history of infectious diseases and the incidence of stunting, namely toddlers who suffer from infectious diseases have a 17 times risk of stunting than toddlers who do not suffer from infectious diseases.

Infectious diseases that often occur in toddlers in Isano Mbias Village, Tanah Miring District are ARI and diarrhea. ARI and diarrhea can make children have no appetite so that there is a shortage of food and drink that enters the body and can lead to malnutrition and stunting.

Toddlers who have infectious diseases will cause symptoms such as not feeling hungry, not wanting to eat, mouth tastes bitter which can cause nutritional intake in children to be reduced so that it will affect growth and development in children. Food for children must contain sufficient quality and quantity to produce good health (Sutriyawan, 2019).

The results obtained in under-fives with no history of infectious disease > 3 times a year in Isano Mbias Village, Tanah Miring District, found as many as 32%. This is because the link between infectious diseases and the fulfillment of nutritional intake cannot be separated.

The presence of infectious diseases will worsen the situation if there is a lack of nutritional intake. Undernourished children are more susceptible to infectious diseases. Infectious diseases will also increase the need for nutrients to help fight the disease itself. Fulfillment of nutrients that are in accordance with needs but the infectious disease suffered is not handled will not be able to improve the health and nutritional status of children under five. For this reason, handling infectious diseases as early as possible will help improve nutrition by balancing the fulfillment of intake in accordance with the needs of children under five (Supariasa, 2019).

According to Handayani (2020) diarrhea also has an impact on linear growth in children. If the child often has diarrhea in the first 24 months of his life, it can be stated that the child tends to be short. Infectious diseases inhibit normal immunological reactions by depleting the body of energy. If toddlers do not have immunity to disease, toddlers will lose body energy faster because of infectious diseases as the first reaction due to infection is a decrease in the child's appetite so that the child refuses food given by his mother. Refusal of food means reduced intake of nutrients in the child's body (Al Rahmad, 2016).

Research suggests that infectious diseases and lack of food can stem from poverty and an unhealthy environment and poor sanitation. Lack of nutritional intake will worsen in toddlers who suffer from infectious diseases. Therefore, it is necessary to improve family nutrition and improve environmental sanitation through counseling.

#### H. MULTIVARIAT ANALYZED

The results showed that the dominant factors with the incidence of stunting in toddlers in Isano Mbias Village, Tanah Miring District, Merauka Regency were environmental sanitation and family income. Poor environmental sanitation

causes children to be susceptible to infectious diseases, this is due to the lack of family income in meeting the needs of good sanitation for the family.

Family income is related to the ability of the household to meet the needs of life, both primary, secondary and tertiary. High family income makes it easier to meet the needs of life, on the contrary, low family income is more have difficulty in meeting the necessities of life. Low income will affect the quality and quantity of food consumed by the family.

In toddlers who live with poor sanitation conditions and suffer from infectious diseases, they will be interrelated because the food they get will usually be less varied and in small amounts, especially in materials that function for the growth of children, sources of protein, vitamins and minerals. and minerals, thereby increasing the risk of exposure to infectious diseases and when exposed to infectious diseases and with a lack of family nutrition as a result of low incomes causing a higher risk of stunting (Hapsari, 2018).

In the opinion of researchers Stunting is caused by multi-dimensional factors and is not only caused by poor nutrition experienced by pregnant women and children under five. The most decisive intervention to reduce the prevalence of stunting therefore needs to be carried out in the First 1,000 Days of Life (HPK) of children under five, one of which is the fulfillment of proper sanitation facilities and access to clean water facilities that do not meet the requirements coming from unimproved sources, distance from sources. water is too close to the latrine, improper water treatment before consumption can cause nutritional problems in children.

In addition, it is necessary to increase the knowledge of families, especially mothers, in fulfilling nutritional intake even though they have less family income but can provide a variety of food by utilizing the surrounding environment.

Therefore, attention is needed from all parties, especially health workers as educational staff in increasing family knowledge about sanitation and nutrition in families to the needs of environmental sanitation and safe drinking water starting from protected water sources, quantity, quality, storage and treatment of water and needs especially in the first 1000 days of pregnancy to prevent and reduce the incidence of stunting in children under five.

#### IV. CONCLUSIONS

The results of the research showed that the factors that are related to the risk of stunting in Kampung Isano Mbias District Tanah Miring Regency Merauke are income (p-value 0.027; OR = 2.68 (1,191-6,032), sanitation (p-value 0.000; OR = 11 (3,952-30,614); BBLR (p-value 0,035 <  $\alpha$  (0,05); OR = 9,33 (1,121-77,70); ASI (p-value 0,001; OR = 4,148 (1,798-9,573) , immunization (p-value 0,000; OR = 7,250 (2,827-18,594), infectious disease (p-value 0,043 <  $\alpha$  (0,05); OR = 2,495 (1,105-5,629) The dominant factor with the occurrence of stunting in news in Kampung Isano Mbias District Tanah Miring Regency Merauke is sanitation.

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