PATOFISIOLOGI STUNTING : *LITERATURE REVIEW*

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ABSTRAK
Stunting merupakan suatu penyakit atau dapat berupa gangguan pertumbuhan dan perkembangan anak usia dini akibat kekurangan gizi ibu dan anak, infeksi berulang, dan simulasi psikososial yang tidak memadai. Stunting pada anak merupakan hambatan terbesar bagi pembangunan manusia karena stunting merupakan masalah multidimensi yang mempunyai konsekuensi jangka panjang. Pada tahun 2012, Organisasi Kesehatan Dunia (WHO) menyatakan bahwa secara global 162 juta anak di bawah usia lima tahun mengalami stunting. Berdasarkan hasil SSGI, prevalensi stunting di Indonesia mengalami penurunan dari 24,4% pada tahun 2021 menjadi 21,6% pada tahun 2022. Hal ini menunjukkan bahwa kebijakan pemerintah untuk menurunkan angka stunting membuahkan hasil yang positif. Namun angka tersebut masih jauh dari target negara pada tahun 2024 sebesar 14% (Kementerian Kesehatan, 2023). Tingginya prevalensi stunting dapat menjadi salah satu faktor rendahnya kualitas sumber daya manusia di suatu negara. Stunting dapat menyebabkan rendahnya kemampuan kognitif, rendahnya produktivitas anak, dan dapat meningkatkan risiko penyakit yang mengakibatkan kerugian jangka panjang bagi perekonomian negara. Tujuan penulisan ini adalah untuk mengetahui penjelasan mulai dari penyebab hingga dampak yang ditimbulkan oleh stunting. Metode tinjauan literatur dari lebih dari 20 jurnal penelitian tentang stunting. Dampaknya terdapat berbagai kondisi yang menyebabkan seorang anak mengalami stunting dan apabila tidak ditangani secara serius akan menimbulkan berbagai kondisi serius yang mengancam kesehatan anak, sehingga diperlukan perhatian dan penatalaksanaan seluruh elemen secara komprehensif.

Kata kunci : dampak, jangka panjang, jangka pendek, penyebab, stunting

ABSTRACT
Stunting is a disease or can be a disorder of early childhood growth and development due to maternal and child malnutrition, recurrent infections and inadequate psychosocial simulation. Stunting in children is the biggest obstacle to human development because stunting is a multidimensional problem with long-term consequences. In 2012, the World Health Organization (WHO) stated that globally 162 million children under the age of five experienced stunting. According to the results of the SSGI, the prevalence of stunting in Indonesia has decreased from 24.4% in 2021 to 21.6% in 2022. This shows that the government's policy to reduce stunting rates has yielded positive results. However, this figure is still far from the country's target of 2024 of 14% (Ministry of Health, 2023). The high prevalence of stunting can be a factor in the low quality of human resources in a country. Stunting can cause low cognitive abilities, low child productivity, and can increase the risk of disease that results in long-term losses for the country's economy. The purpose of writing is to find out the explanation starting from the causes to the impacts caused by stunting. The literature review method from more than 20 research journals on stunting. The results are that there are various conditions that cause a child to experience stunting and if not handled seriously will cause various serious conditions that threaten the child's health, so that attention and management of all elements are needed comprehensively.

Keywords *: stunting, causes, impacts, long term, short term*

INTRODUCTION

The manuscript is written with Calibri font size 11, single-spaced, left and right justified, on one-sided pages, on A4 paper (210 mm x 297 mm) with the upper margin of 3.5 cm, lower 2.5 cm, left and right each 2 cm. The manuscript including the graphic contents and tables should be 6 to 8 pages (3500–4500 words), preferably in even number of pages. If it far exceeds

the prescribed length, it is recommended to break it into two separate manuscripts. Authors need to write a short title is also desirable to be written as a page header on each journal page. The use of abbreviations is permitted, but the abbreviation must be written in full and complete when it is mentioned for the first time and it should be written between parentheses. Terms/Foreign words or regional words should be written in italics. Notations should be brief and clear and written according to the standardized writing style. Symbols/signs should be clear and distinguishable, such as the use of number 1 and letter l (also number 0 and letter O). Avoid using parentheses to clarify or explain a definition. The use of subheadings is discouraged. Between paragraphs, the distance is one space. Footnote is avoided.

Stunting is a disease or can be a disorder of early childhood growth and development due to maternal and child malnutrition, recurrent infections and inadequate psychosocial simulation (World Health Organization, 2015). Stunting in children is the biggest obstacle to human development because stunting is a multidimensional problem with long-term consequences. In 2012, the World Health Organization (WHO) stated that globally 162 million children under the age of five experienced stunting. According to the results of the SSGI, the prevalence of stunting in Indonesia has decreased from 24.4% in 2021 to 21.6% in 2022. This shows that the government's policy to reduce stunting rates has yielded positive results. However, this figure is still far from the country's target of 14% in 2024 (Ministry of Health, 2023).

A child can be considered stunted if the child's height is two standard deviations below the median of the World Health Organization's growth standards for children of the same age and sex. (World Health Organization, 2016). In 2018, it was estimated that around 151 million or 22.2% of children under the age of 5 were stunted. In the same year, stunting in Asia reached 83.6 million children under the age of 5, the stunting rate in Asia is higher than in other continents (UNICEF et al., 2019). Malnutrition is a serious global problem that can claim victims and have a negative impact on a country's development. As a result, stunting is the second goal of the Sustainable Development Goals (SDGs), which aim to end hunger and all forms of malnutrition and achieve food security by 2030. The global target set is to reduce stunting rates by 40% by 2025 (a reduction to 99 million stunted children from 165 million in 2012) (World Health Organization, 2021).

The prevalence of toddlers experiencing stunting in the world according to WHO is 21.9%. Most of these stunted toddlers come from Asia (World Health Organization, 2020). Based on data from the Indonesian Toddler Nutrition Status Survey (SSGBI), the high prevalence of stunting can be a factor in the low quality of human resources in a country. This is because stunting can cause low cognitive abilities, low child productivity, and can increase the risk of disease which results in long-term losses for the country's economy (Setiawan Eko, et al., 2018). Therefore, the impact of stunting is very diverse and everyone in government and society needs to pay close attention to it. in 2021, the prevalence of stunting in toddlers in Indonesia decreased from 2019 to 2021, namely from 27.67% to 24.4%. Handling stunting incidents is one of the national development priorities explained in the 2020–2024 RPJMN, the government's target is to reduce the prevalence of stunting to 14% by 2024 (National Development Planning Agency, 2019). Stunting is a major threat to the quality of Indonesian people, as well as a threat to the nation's competitiveness, increasing the risk of a lost generation and even a lost nation (Indonesia baik.id Team, 2019).

Nutritional problems in toddlers are still a major problem in the population order. The incidence of short toddlers or commonly referred to as stunting is one of the nutritional problems experienced by toddlers in the world today (World Health Organization, 2020). Stunting is still a major nutritional problem in developing countries like Indonesia. Stunting or chronic malnutrition is a nutritional problem due to a lack of nutritional intake from food that lasts for a long time (Andriani et al., 2017). Stunting is a complex problem caused by several factors, both directly and indirectly. Trihono revealed that the factors that directly cause

stunting are lack of nutritional intake and the presence of diseases, especially infectious diseases. While indirect causes consist of family food security factors, parenting patterns and family eating patterns as well as environmental health and health services. The underlying causes of all these factors are Education, poverty, disparity, socio-culture, government policies and politics (Trihono, ddl, 2015).

According to (Setiyaningrum Iva, 2019) some of the causes include factors starting from A. Mother and Child Factors including 1) a) Maternal period (period of teenage girls/prospective mothers, b) Period of women of childbearing age, c) Period of pregnant women, d) Period of breastfeeding mothers. 2) Infant period; a) Period of birth of the baby, b) Period of Early Breastfeeding Initiation/IMD, c) Period of the first thousand days of life, d) Period of exclusive breastfeeding and breastfeeding, e) period of MPASI, f) period of early weaning) 3) Period of toddlers a) Lack of consumption of nutritional intake, b) Infection conditions, c) Gender, d) Status of children) B. Risk factors originating from the family 1) Environment 2) Sanitation patterns 3) Hygiene 4) Parenting patterns 5) Number of siblings 6) Family socio-economic.

This can cause disorders in the immune system and brain development Pertiwi Aisyah & Hendrati Lucia, (2023) Stunting has a major impact on children's growth and development. All aspects of children's growth and development, namely weight and height growth and cognitive development, gross motor skills, fine motor skills, speech skills, and social emotions will run slowly and not optimally if children experience stunting and have poor nutritional status. If this condition occurs during the golden period, children's suboptimal growth and development can be irreversible or cannot be changed when they are adults (Laily Linuria & Indarjo Sofwan, 2023).

Short-term consequences include health, development and economic problems. Short-term health problems due to stunting include increased mortality and morbidity. Stunting can also cause decreased cognitive, motor and language development. Economic problems include increased spending due to health problems, increased likelihood of costs for treating sick children. Stunting in childhood has consequences that affect the health and development of human resources. In addition to poor physical growth, stunting affects the risk of infection and death in children, cognitive and motor development, learning capacity and performance in school.

Stunting can cause long-term problems in two ways. As a direct cause of shorter adult stature and less than optimal body function later in life, and as a key to the underlying processes in early life that lead to poor growth and other adverse outcomes Long-term impacts include impaired susceptibility to illness, obesity, decreased glucose tolerance, coronary heart disease, hypertension, and osteoporosis. Further impacts affect productivity, wages, and reproductive health. Stunting followed by excessive weight gain in childhood subsequently leads to an increased risk of chronic diseases related to nutrition such as diabetes and heart disease. (Wirth, et al, 2017; Beal, et al, 2018). Stunting can cause long-term impairments/impacts on physical, immunological, neurocognitive, and socio-economic conditions (Cheng et al., 2017).

Toddlerhood is an important period in a child's growth and development because the basic growth that occurs during infancy will influence and determine the child's subsequent development. As is known, the first three years (toddlers) are the golden period, namely the optimization of the growth and development process. In the growth and development of children, nutrients are needed so that the growth and development process runs well (Annisa, Sumiaty, & Tondong, 2019). The nutrients consumed by toddlers will affect the nutritional status of toddlers (Khoeroh, Handayani, & Indriyanti, 2017). Stunting causes body organs not to grow and develop optimally. Stunting toddlers contribute to 1.5 million (15%) of toddler deaths in the world and cause 55 million Disability-Adjusted Life Years (DALYs), namely the loss of healthy life span each year (Ministry of National Development Planning/National

Development Planning Agency, 2018). Nutrition plays an important role in stunting. Nutrition ensures that the development and growth of children's brain cells takes place normally and well. Adequate nutrition affects the growth and development of children, especially the golden age. explained that stunted children have a delay in the maturity of nerve cells that regulate gross and fine motor movements. This causes children to not have good experiences as impulses in the brain, thus affecting the child's intelligence. In aggregate, these conditions hamper children's growth and development. Delays in children's growth and development will affect their responses through the five senses. Children will tend to be quiet, not have good responses in terms of motoric, cognitive or affective. Manggala et al (2018) in Sakti Syahria, 2020).

The growth process is under genetic control and environmental influences, which operate in such a way that, at certain times during the growth period, one or the other may be the dominant influence. At conception, there is a genetic blueprint that includes the potential to reach a certain adult size and shape. The environment changes this potential. When the environment is neutral, does not have a negative influence on the growth process, genetic potential can be fully realized. However, the ability of environmental influences to change genetic potential depends on many factors, including the time at which they occur; strength, duration, frequency of occurrence; and the age and gender of the child. In terms of human growth and development, the endocrine glands. Infection causes a decrease in nutritional status through decreased appetite, impaired intestinal absorption, increased catabolism, inhibited growth and changes in immune response. In turn, malnutrition increases the risk of infection by its negative impact on epithelial function and changes in immune response. Infectious diseases caused by poor hygiene and sanitation (eg diarrhea and worms) can interfere with nutrient absorption in the digestive process. Some infectious diseases suffered by infants can cause the baby to lose weight.

Infectious diseases that are often suffered by toddlers such as worms, Upper Respiratory Tract Infections (URTIs), diarrhea and other infections are closely related to the status of the quality of basic health services, especially immunization, environmental quality and healthy behavior ((Nations & Unicef, 2013); (Hanum & Khosman, 2012)). If this condition occurs for a long time and is not accompanied by the provision of sufficient intake for the healing process, it can result in stunting (Data and Information Center, Ministry of Health of the Republic of Indonesia, 2018). Fulfillment of nutrients that are in accordance with needs but the infectious disease suffered is not treated will not be able to improve the health status and nutritional status of toddlers. Therefore, early treatment of infectious diseases will help improve nutrition by balancing it with the fulfillment of intake according to the needs of toddlers. There are several studies examining the relationship between infectious diseases and stunting which state that diarrhea is one of the risk factors for stunting in children under 5 years of age (National Team for the Acceleration of Poverty Reduction, 2017).

Stunting is closely related to child development. There have been many theories stating that nutritional status, including stunting, has a major influence on child development, in the short term, stunting causes growth failure, cognitive and motoric developmental disorders, and suboptimal physical body size and metabolic disorders. Developmental problems include worse psychomotor and mental development (McDonald et al. 2013; Steward, 2013). The results of the latest research conducted by Alam, et al., (2020) show that stunting is associated with lower cognitive development in children aged 5 years. Even the results of research by Walker, et al., (2015) in Jamaica on child development were studied using the "Griffiths Scales of Mental Development" which consists of 4 subscales, namely cognitive, hearing and speech, hands and eyes, and locomotory, and overall development showed that children born to parents who experience stunting have a lower level of development than children whose parents do not experience stunting.

In addition to development, the cognitive and motor functions of children who have stunted parents are also lower than children of parents who do not experience stunting. This shows that stunting can have an impact not only on one generation but the next generation can be affected if not handled properly. In addition to causing shortness, this may cause damage to the structure and function of the brain which results in delays in the development of cognitive functions and permanent cognitive disorders Dewey & Begum, 2011). The results of a recent study conducted by Svefors et al., (2020) in rural areas in Bangladesh showed that stunted children will experience delayed puberty compared to children of the same age who do not suffer from stunting. Stunting causes physical development of children to be disrupted which causes brain development of children in the golden age period to be suboptimal, in addition, the study also found that stunting in Indonesia causes social and affective development of children to be disrupted (Sakti, 2020). The acquisition of a child's first language which is the main basis for children to communicate in everyday life will of course be hampered because the lack of language acquisition process experiences brain development disorders in stunting sufferers.

The imperfection in acquiring language will cause children to experience speech delay or delay in speaking at the next stage of child development. In line with expert opinion that speech delay is one of the speech disorders that occurs in the process of language acquisition, so that a child experiences a delay in speaking (Aminah & Ratnawati, 2022). Children who suffer from speech delay are usually due to watching too often so that it does not stimulate the child to speak and only makes the child listen rather than speak. However, in its treatment, speech therapy can be carried out which involves gross motor skills and balance (Muslimat & Hadrawi, 2020). The growth of short babies with normal babies was obtained from a study at 10 Health Centers in Bogor Regency. The growth of stunted babies always lags behind normal babies and is far from the standard for increasing baby length according to WHO (Trihono, et. Al., 2015). Individuals who experience stunting at the age of 2 years tend to grow into short adults (Adair et al. 2013). There may be an opportunity to catch up on height during childhood, due to increased nutrition, but this will take longer to increase height. Shortness or stunting in childhood is closely related to non-communicable diseases in adulthood. Many studies abroad have proven this relationship. A study on the relationship between stunting and diabetes mellitus has been conducted using the 2007 Riskesdas data.

Although the Riskesdas data is cross-sectional, it has produced the following findings: 1) stunting is a risk factor for diabetes mellitus in the thin and normal group (BMI <23), and has a 1.5 times risk of suffering from diabetes mellitus; 2) Those who experience stunting are not obese (BMI <23) have a 1.5 times risk, while those who are stunted and obese have a 3.4 times risk of developing diabetes mellitus compared to those who are not stunted and not obese (Trihono, et. Al., 2015). In addition, malnutrition also causes growth disorders (short and/or thin) and increases the risk of non-communicable diseases such as diabetes mellitus, hypertension, coronary heart disease, and stroke (Ministry of National Development Planning/National Development Planning Agency, 2018). Stunting conditions not only have a direct impact on the intellectual quality of the nation, but are also an indirect factor in degenerative diseases (diseases that appear with age). Various studies have shown that children who are malnourished as toddlers, then experience stunting, will be more likely to become obese and suffer from diabetes mellitus in adulthood. A person who is malnourished during their growth and development can experience problems with the development of the insulin and glucagon hormonal systems in the pancreas that regulate glucose balance and metabolism. Thus, in adulthood if there is excess calorie intake, blood sugar balance is more quickly disrupted, and the formation of body fat tissue (lipogenesis) is also easier. Thus, stunting also plays a role in increasing the double nutritional burden on increasing chronic diseases in the future.

Several studies have shown the risks caused by stunting, namely decreased academic achievement, increased risk of obesity, more susceptible to non-communicable diseases and increased risk of degenerative diseases. Children who are stunted before the age of 2 (two) years have worse outcomes in their emotions and behavior in late adolescence (Rindu Dwi, Malateki Solihin, Faisal Anwar, 2013). Children who suffer from stunting will be more susceptible to disease and when they are adults are at risk of developing degenerative diseases. The impact of stunting is not only on health but also affects the level of intelligence of students (Hassan et al., 2021). In Yadika's research (2019), it was stated that stunting can cause disruption in the process of brain neuron maturation and changes in brain structure and function which can cause permanent damage to cognitive development. This causes children's thinking and learning abilities to be disrupted and ultimately reduces learning achievement.

Children who have less than optimal intelligence due to stunting can ultimately hinder economic growth, increase poverty, and widen inequality in a country (TNPPK, 2017). Stunting is caused by chronic malnutrition of nutrient intake which can cause disruption in growth and development, the impact of malnutrition in children can cause decreased brain development which can have an impact on children's intelligence (Arini et al., 2019). One of the impacts of stunting is the suboptimal cognitive abilities of children which will affect their future lives (Daracantika, 2021). This is in line with research conducted by Aurora, et al (2020) which examined the Comparison of IQ Scores (Intellectual Question) in stunted and normal children, the results of the study showed that stunted children got IQ scores 4.57 times lower than the IQ of children who were not stunted. Where stunted children with IQ scores below average were 48 children (64%). Meanwhile, in children who are not stunted who get an average IQ score above 72% and those who get an average IQ score below 28%.

Stunting also affects reproductive health. Stunting in mothers can limit uterine blood flow and growth of the uterus, placenta, and fetus. IUGR is associated with adverse effects on the fetus). During pregnancy, IUGR can cause chronic fetal distress or fetal death. If born alive, growth is restricted and the infant is at increased risk of serious medical complications (Black et al. 2008 in Dewey and Begum, 2011. Infants with IUGR often suffer from delayed neurological and intellectual development, and their height deficit generally persists into adulthood. In women, shorter stature (<145 cm) is a consistent risk factor for perinatal death, possibly due to increased risk of obstructed labor and asphyxia. Stunting has implications for adult health and is a risk factor for chronic disease. Studies of infants born with low birth weight have shown consistent associations with high blood pressure (hypertension), kidney dysfunction and altered glucose metabolism (Stewart et al., 2013). Maternal stunting (height <145 cm) is consistently at increased risk of perinatal death. This is because mothers with short stature have a disproportionate pelvis which can lead to difficulties during childbirth (Dewey & Begum, 2011).

In cases of stunting, the risk of psychosocial dysfunction is higher than in normal conditions. Children are detected to have low self-confidence and are also at risk of causing family problems, especially when they reach adolescence (Erfanti, D.O., Setiabudi, D. and Rusmil, K, 2016). Children with stunting are also easily anxious and prone to depression. After becoming teenagers, children can be at risk of having low cognitive abilities, which are 18.333 times less developed than non-stunted adolescents (Rahmaningrum, 2017). Children's suboptimal learning capacity and decreased performance during school can cause productivity and performance when children are adults to also be suboptimal (Budi, 2017) (Ministry of Health, 2018; Susan P. Walker, Susan M. Chang, Christine A. Powell, Emily Simonoff, Sally M. Grantham-McGregor, 2007). Emotional problems are seen from high anxiety, lack of happiness and lack of self-confidence. The habit of taking other people's things, lying, often fighting, being disobedient, and getting angry easily are manifestations of behavioral problems in stunted children. Meanwhile, children who often complain of being bullied by friends, do

not have many friends and are often alone are characteristics of peer-related problems (Rahmadi et al., 2016).

Other sources state that children with stunting in the early two years of their lives tend to be at risk of experiencing problems with psychological conditions as teenagers when compared to normal children. Among them are a tendency to be anxious and prone to depression, low self-confidence, and showing hyperactive behaviors that lead to behavior that is contrary to normal conditions (Susan P. Walker, Susan M. Chang, Christine A. Powell, Emily Simonoff, Sally M. Grantham-McGregor, 2007). Rahmadi (2016) stated that children who have short body shapes are more likely to experience behavioral problems, are easily emotional, and have social problems with friends compared to children who have normal height (Moelok, 2018); (Syahrani & Mitra, 2019). In the long term, stunting can cause decreased intellectual capacity. Permanent disorders of the structure and function of nerves and brain cells and cause decreased ability to absorb lessons at school age which will affect productivity as adults (Ministry of National Development Planning/National Development Planning Agency, 2018).

The Maternal and Child Undernutrition Study Group found that children who experienced stunting at 24 months were associated with an older age at school enrollment and a 16% increased risk of failure of at least one grade in school after controlling for confounding variables such as gender, socioeconomic status and mother's school. Evidence from other developing countries also shows that experiencing stunting between the ages of 12 and 36 months is associated with poorer cognitive performance and lower school achievement in mid-childhood (Grantham-McGregor et al. 2007 in Dewey & Begum, 2011). Stunting has a major impact on children's growth and development and also the Indonesian economy in the future. The impact of stunting on children's health and growth is very detrimental. Stunting can cause disorders in children's growth and development, especially in children under two years of age. Children who experience stunting will generally experience obstacles in their cognitive and motor development which will affect their productivity as adults. In addition, stunted children also have a greater risk of suffering from non-communicable diseases such as diabetes, obesity, and heart disease as adults. Economically, this will certainly be a burden for the country, especially due to increased health financing. The potential economic losses caused by stunting are very large.

The World Bank report in 2016 explained that the potential economic loss due to stunting reaches 2-3% of Gross Domestic Product (GDP). Thus, if Indonesia's GDP is IDR 13,000 trillion, then the potential economic loss that may be experienced is IDR 260-390 trillion per year. In some countries in Africa and Asia, the potential loss due to stunting is even higher, reaching 11% (Data and Information Center of the Indonesian Ministry of Health, 2018). Stunting is associated with lower economic productivity. For example, in a cross-sectional study in Brazil, a 1% increase in height was associated with a 2.4% increase in wages (Thomas & Strauss 1997 in Dewey & Begum, 2011). Taller men and women earn more even after controlling for Education and other health indicators such as BMI, energy intake per capita and protein intake per capita (Dewey & Begum, 2011).

METHODS

This study uses a literature review research type with the selected review model being a narrative review. The study conducted on the narrative review model is to compare data from several journals This study uses a literature review research type with the selected review model being a narrative review. The study conducted on the narrative review model is to compare data from several literature books, national and international journals that have been analyzed and summarized based on the author's experience, existing theories and models. The research method used is a qualitative research method with the data source used in the form of

secondary data obtained from several journals This study uses a literature review research type with the selected review model being a narrative review. The study conducted on the narrative review model is to compare data from several international journals that have been analyzed and summarized based on the author's experience, existing theories and models. The research method used is a qualitative research method with the data source used in the form of secondary data obtained from several international journals, articles and previous research that has been analyzed by the author related to the problems to be studied in this study. The researcher used a descriptive analytical method by collecting, identifying, compiling and analyzing various data that were found, articles and previous research that had been analyzed by the author related to the problems to be studied in this stud, and various data that were found that had been analyzed and summarized based on the author's experience, existing theories and models.

The research method used was a qualitative research method with data sources used in the form of secondary data obtained from several international journals, articles and previous research that had been analyzed by the author related to the problems to be studied in this study. The researcher used a descriptive analytical method by collecting, identifying, compiling and analyzing various data that were found.

RESULTS

Short-term consequences include health, development and economic problems. Short-term health problems due to stunting include increased mortality and morbidity. Stunting can also cause decreased cognitive, motor and language development. Economic problems include increased expenditure due to health problems, increased likelihood of costs of caring for sick children. Stunting in childhood has consequences that affect the health and development of human resources. In addition to poor physical growth, stunting affects the risk of infection and death in children, cognitive and motor development, learning capacity and school performance. Stunting can cause long-term problems in two ways: As a direct cause of shorter adult stature and less than optimal body function later in life, and as a key to the underlying processes in early life that lead to poor growth and other adverse effects Long-term impacts include disorders of susceptibility to illness, obesity, decreased glucose tolerance, coronary heart disease, hypertension and osteoporosis. Further impacts affect productivity, wages and reproductive health | Stefanus Mendes Kiik & Muhammad Saleh Nuwa. Stunting followed by excessive weight gain in childhood subsequently leads to an increased risk of chronic diseases related to nutrition such as diabetes and heart disease. (Wirth, et al, 2017; Beal, et al, 2018). Stunting can cause long-term disorders/impacts on physical, immunological, neurocognitive, and socio-economic conditions (Cheng et al., 2017).

DISCUSSIONS

Stunting is a very serious health problem that threatens to lose a generation and a nation and could even wipe out the world's population if not handled seriously.

CONCLUSIONS

Stunting requires follow-up efforts from all levels of society, across sectors and across programs. Also primarily related to the development of child nursing and family nursing in the community to strive for prevention efforts to improve health and even efforts to restore catch-up growth.

ACKNOWLEDGMENT

The researcher would like to express his gratitude for the support, inspiration and assistance to all parties in helping the researcher complete this research, including the participants who were willing to participate in the research until it was completed.

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