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The Analysis of Factors that Influence Stunting

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Abstract

Stunting in children is a national problem caused by many factors that harm human resources in the future, including an impact on decreasing intelligence, vulnerability to disease, hampering economic growth, work productivity, exacerbating inequality, and height growth is shorter than age in general. Stunting in children under five is a consequence of several factors that are often associated with poverty, including nutrition, health, sanitation, and the environment There are five main factors that cause stunting, namely poverty, social and cultural, increased exposure to infectious diseases, food insecurity and community access to health service. The purpose of this literature review was to analyze the factors that influence stunting. The article was obtained from a SINTA accredited journal published in the 2013-2023 period with the same title, as well as the same research design. The selected articles were then tested for plagiarism, and nine articles with the smallest plagiarism level were selected. Analysis PICO (Population, Intervention, Comparison, Outcome) is carried out on each article, followed by making conclusions. The results of the analysis determined that factors that influence stunting include social and cultural, increased exposure to infectious diseases, food insecurity and community access to health services alone or together. The author hopes that this research will further greatly help how to do health promotion, case finding and prevention, and, many sectors must be involved and work together for the problem of stunting.

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INTRODUCTION

Childhood under five is a group that is vulnerable to malnutrition, one of which is stunting which is a linear growth disorder (Ulfah & Nugroho, 2020). This condition, measured by length or height that is more than minus two standard deviations of the median child growth standard from WHO, can also be the best indicator to measure children's well-being and accurately reflect the situation of social inequality. In Indonesia nutrition problems are still a priority, this is because nutritional problems have an impact on the quality of human resources (HR) (Ratih et al., 2022). Based on a study conducted by the Indonesian Toddler Nutrition Status Study, it can be seen that the national stunting prevalence showed a figure of 27.67% (Laksono & Megatsari, 2020). Meanwhile, based on data revealed by Doctor Hasto, head of BKKBN, in 2021 the national stunting rate decreased to 24.4%. Stunting cases in toddlers in Indonesia are quite high, exceeding the standards set by WHO, which is 20% (Fariza et al., 2023).

The government poured policies in the national medium-term development plan (RPJMN) 2020-2024 to prioritize accelerating the reduction of stunting under five with a target of 14% (Dewanti et al., 2020). Factors causing stunting consist of basic factors such as economic factors and maternal education, then intermediate factors such as the number of family members, maternal height, maternal age, and number of maternal children, then proximal factors such as exclusive breastfeeding, child age, and Low Birth Weight, and or the five main factors causing stunting, namely poverty, social and cultural, increased exposure to infectious diseases, food insecurity and community access to health services (Nugroho et al., 2021). The impact of stunting is not only a disruption of children's physical growth but also affects the brain growth of toddlers. Stunting has a lifelong impact on children(Ulfah & Nugroho, 2020). Therefore, this study is expected to be able to understand the factors that influence the occurrence of stunting in children under five.

Similar research has been widely published, but because stunting is a problem of international concern, research like this must continue. The results of this study can sharpen the prioritization of solving stunting problems.

METHODS

This literature study uses the Systematic Literature Review (SLR) method, which is a systematic, comprehensive literature study by identifying, evaluating, and collecting existing research data. This study aimed to analyze the factors that influence stunting. This literature review was compiled through searching research articles that had been published and were original research. This literature review was compiled through tracing research articles that had been published in Sinta and were original research. The articles were collected through the Google Scholar data base using the keywords causal factors, stunting, toddlers, causal factors, stunting, toddlers. The criteria for articles used were those published from 2013 to 2023 which were accessed full text. The process of selecting articles reviewed was winnowed by article search. Then it is excluded and in the end the article that had been entered was further synthesized. The data extraction tools were designed to guide information from records according to research objectives. The data extracted on each article that included includes: author, year, method, and result/output. After filtering based on the suitability of the article title with the research objectives so that 9 relevant articles were obtained. The results of the data analysis were then known as PICO (Population, Intervention, Comparison, Outcome) so that the data collected showed factors that affect stunting.

RESULT

Table 1 List of Reviewed Articles

No	Author	Title	Analysis	Result
1	Yuswanti, Mulyaningrum & Susanti, 2021	Factors affecting stunting in toddlers in Grobogan district, Grobogan district research site	Bivariate data analysis using Chi Square and multivariate data analysis using logistic regression	Found that nutritional status, health problems in children, eating habits of instant food, and maternal height were associated with stunting in toddlers with a p value of < 0.05

No	Author	Title	Analysis	Result
2	Ulfah & Nugroho, 2020	Looking at the Challenges of Health Development in Indonesia: Factors Causing Stunting in Jember Regency	The research methods used are qualitative descriptive and purposive techniques to determine informants as resource persons	showed that the factors causing stunting were early marriage, low level of education, and problems with employment and income
3	Harianisa & Yani, 2017	Factors related to the incidence of stunting in toddlers in Nagari Talang Babungo, Solok Regency	The research design used was cross-sectional design. Data were analyzed univariately and bivariately using the Chi-Square test	There is a relationship between stunting and the incidence of diarrhea, but there is no relationship between stunting with protein intake, zinc intake, and the incidence of low weight
4	Ekawati, 2022	Factors Associated with the Incidence of Stunting in Toddlers in Malinau Hilir Village, Malinau Regency, Kalimantan	This study used a cross-sectional design. The data analysis used is a bivariate statistical test with the Chi-Square Test	This study shows that there is a relationship between feeding patterns (p = 0.002), hygiene patterns (p = 0.001), health service search patterns (p = 0.000) and psychosocial stimulation patterns (p = 0.004) with the incidence of stunting in toddlers aged 24-59 months in Malinau Hilir Village, Malinau Regency
5	Sulaeman, 2022	Factors that influence the incidence of stunting in toddlers in the working area of the Lompoe Health Center in Parepare City	The design of this study used an analytical observational method with a cross-sectional approach	The results of the maternal education chi-square test p-value = 0.016, maternal knowledge about toddler nutrition p-value = 0.008, per capita opinion p-value = 0.031, and exclusive breastfeeding p-value = 0.788
6	Purnama, 2023	Overview of risk factors for stunting toddlers in Siwalanpanji Village, Sidoarjo Regency, East Java	This research is an observational descriptive study	As many as 67% of mothers who have stunted children with feeding behavior in the poor category.
7	Supariasa, IDewa Nyoman, 2019	Factors that influence the incidence of stunting in toddlers in poor children. The purpose of this study was to analyze the factors that affect stunting toddlers in Malang Regency	This type of research is a Case-Control analytical survey research with a retrospective approach which is a design of epidemiological observations to study the relationship between exposure levels with the	The causes of stunting are based on the most influencing factors in order, namely: family income, exclusive breastfeeding, family size, education of toddler fathers, toddler father's work, nutritional knowledge of toddler mothers, family food security, education of toddler mothers, toddler carbohydrate consumption levels, accuracy of weaning food or MP-ASI, level of toddler fat consumption, history of toddler infectious diseases, socio-

No	Author	Title	Analysis	Result
			incidence of disease or other health problems.	culture, level of toddler protein consumption, work of toddler mothers, kadarzi behavior, level of energy consumption of toddlers, and completeness of toddler immunizations
8	Rahayu et al., 2022	Description of the factors causing stunting in toddlers in the working area of the puskesmas semanding tuban	This type of research is quantitative with a descriptive survey	The biggest factor was found in stunting toddlers in the Semanding Tuban Health Center work area after filling out the questionnaire distributed were maternal education, parental income and exclusive breastfeeding
9	Darwata, I Wayan, Yanti, & Ni kadek Ratih, Kartinawati, 2022	Factors Influencing the Incidence of Stunting in Children Aged 2-5 Years at Ubud Health Center 1 Gianyar	This research is a quantitative analytical research with a control case design	This study concluded that low exclusive breastfeeding is the most influential factor on the incidence of stunting compared to other risk factors (odds ratio = 9.333)

Study/Title: Factors affecting stunting in toddlers in Grobogan district, Grobogan district research site. Number of samples / respondents with a population of stunting toddlers aged 0 – 59 months. The number of samples in this study was 90 people. Bivariate data analysis using Chi Square and multivariate data analysis using logistic regression. The results of the study found that nutritional status, health problems in children, eating habits of instant food, and maternal height were associated with stunting in toddlers with a p value of < 0.05. Abstinence from food, history of iron tablet consumption, history of antenatal care, history of comorbidities in pregnancy, history of exclusive breastfeeding, clean water sanitation, smoker environment and economic conditions are not associated with the incidence of stunting in toddlers with p value = > 0.05. Nutritional status, maternal height, and eating habits of instant food together as risk factors for stunting in toddlers. The conclusions of this study are nutritional status, health problems in children, instant food eating habits, and maternal height are associated with stunting in toddlers (Yuwanti et al., 2021).

Study/title: Looking at the Challenges of Health Development in Indonesia: Factors Causing Stunting in Jember Regency. This study analyzes the socioeconomic factors that cause stunting and how local government policies in handling stunting. The research methods used are qualitative descriptive and purposive techniques to determine informants as resource persons. Meanwhile, data collection techniques consist of in-depth interviews with open-ended question formats, direct observations, and written documents. The results showed that the factors causing stunting were early marriage, low level of education, and problems with employment and income. Conclusion; Early marriage and low education lead to parental unpreparedness in parenting. The issue of employment and income where the average informant is as a farm laborer. In addition, the next problem is the problem of sanitation, where some residents do not have access to drinking water and proper sanitation (Ulfah & Nugroho, 2020).

Study/title: factors related to the incidence of stunting in toddlers in Nagari Talang Babungo, Solok Regency. The purpose of this study was to determine the relationship between protein intake, zinc intake, diarrhea, and low weight with the incidence of stunting in toddlers. The research design used was cross-sectional design. The research was conducted in Nagari Talang Babungo, Hiliran Gumanti District, Solok Regency from February 2019 to May 2020. The population is all children aged 6-59 months in Nagari Talang Babungo with a sample of 72 people taken using a simple random sampling technique. Data were analyzed univariately and bivariately using the Chi-Square test. The results of the study obtained the

incidence of stunting 41.7%, protein intake less 23.6%, zinc intake less 37.5%, children who experienced diarrhea 27.8%, and children with low birth weight 8.3%. There is a relationship between stunting and the incidence of diarrhea, but there is no relationship between stunting with protein intake, zinc intake, and the incidence of low weight (Harianisa et al., 2021).

Study / Title: Factors Associated with the Incidence of Stunting in Toddlers in Malinau Hilir Village, Malinau Regency, Kalimantan in 2021, this study aims to analyze the relationship between maternal feeding patterns, hygiene, health service search and psychosocial stimulation with the incidence of stunting in toddlers. This study used a cross sectional design. Sampling using purposive sampling techniques so that up to 109 respondents were obtained. The study respondents were mothers who had toddlers aged 24-59 months in Malinau Hilir Village, Malinau Regency. The instrument used is primary data by measuring Toddler Height using microtoise and questionnaire. The data analysis used is a bivariate statistical test with the Chi-Square Test. This study shows that there is a relationship between feeding patterns (p = 0.002), hygiene patterns (p = 0.001), health service search patterns (p = 0.000) and psychosocial stimulation patterns (p = 0.004) with the incidence of stunting in toddlers aged 24-59 months in Malinau Hilir Village, Malinau Regency. The conclusion of the study is that factors associated with the incidence of stunting in toddlers include feeding patterns, hygiene patterns, health service seeking patterns and psychosocial stimulation patterns (Ekawati & Rokhaidah, 2022).

Study / Title: factors that influence the incidence of stunting in toddlers in the working area of the Lompoe Health Center in Parepare City, this study aims to determine the factors that influence the incidence of stunting in toddlers in the work area of the Lompoe Health Center in Parepare City In 2020, the design of this study used an analytical observational method with a cross sectional approach. This study showed that the proportion of stunting was 28.6% and not stunting was 71.4%. The results of the maternal education chi-square test p-value = 0.016, maternal knowledge about toddler nutrition p-value = 0.008, per capita opinion p-value = 0.031, and exclusive breastfeeding p-value = 0.788. Based on this result, there is an influence of maternal education, maternal knowledge about toddler nutrition, and per capita income on the incidence of stunting in toddlers (Sulaeman & Purnama, 2022).

Study / Title: Overview of risk factors for stunting toddlers in Siwalanpanji Village, Sidoarjo Regency, East Java, the purpose of the study identified a description of risk factors for stunting in toddlers in Siwalanpanji Village, Sidoarjo Regency, East Java. This research is an observational descriptive study. The population of all children under five who are stunted in Posyandu Anggrek, Siwalanpanji Village, Sidoarjo Regency, East Java. The sampling technique used was a total sampling of 30 respondents. Data collection using questionnaires. The results showed that 60% of stunted children received exclusive breastfeeding. All families (100%) who have stunted children with socioeconomic income below the District Minimum Wage in Sidoarjo, which is Rp. 4,300,000. As many as 60% of stunted children have a tendency to eat behavior food approach or behavior like to eat with the tendency of the highest indicators of eating behavior in the category of desire to drink or the desire of children to always drink. As many as 67% of mothers who have stunted children with feeding behavior in the poor category (Purnama, 2023).

Study / Title: factors that influence the incidence of stunting in toddlers in poor children. The purpose of this study was to analyze the factors that affect stunting toddlers in Malang Regency. This type of research is a Case Control analytical survey research with a retrospective approach which is a design of epidemiological observations to study the relationship between exposure levels with the incidence of disease or other health problems. The time of research implementation is June-August 2019. The types of data collected include maternal knowledge level, parenting, household food security, health services, access to clean water sources, economic level, socio-culture, toddler care, and causes of stunting. Collected by observation, weighing, and interview. Based on data processing, nutritional knowledge of stunting mothers under five is 60% classified as good. Improper parenting of stunting toddlers. Food availability and security in families under five stunting by 76% are classified as underprivileged and food insecure. Health services for stunting mothers during pregnancy include. Blood tablets were given by 98% but based on the interview results most were not consumed. 98% of access to clean water sources for stunted families comes from PDAMs and 2% comes from closed wells. The

economic level of stunting families under five is 96% below the Regional Minimum Wage of Malang Regency. Socio-cultural eating families of stunting toddlers 13% have food restrictions during pregnancy to breastfeeding. The care of stunted toddlers is mostly taken care of by mothers 76% and cared for by grandmothers or siblings as much as 24%. The causes of stunting are based on the most influencing factors in order, namely: family income, exclusive breastfeeding, family size, education of toddler fathers, toddler father's work, nutritional knowledge of toddler mothers, family food security, education of toddler mothers, toddler carbohydrate consumption levels, accuracy of Weaning Food or Mp-Asi, level of toddler fat consumption, history of toddler infectious diseases, socio-culture, level of toddler protein consumption, work of toddler mothers, kadarzi behavior, level of energy consumption of toddlers, and completeness of toddler immunizations (Supariasa & Purwaningsih, 2019).

Study / Title: Description of the factors causing stunting in toddlers in the working area of the puskesmas semanding tuban. The purpose of this study was to determine the picture of what factors cause stunting in toddlers in the work area of the Semanding Health Center Tuban precisely in Mining Village. This type of research is quantitative with a descriptive survey research design, the sampling technique used is Purposive Sampling with a population of 160 people and 114 samples of mothers who have stunting toddlers. The data collection technique used is to use questionnaires. Data is presented in the form of frequency tables. Almost all stunted toddlers in Mining Village do not have low birth weight with as many (82.5%), most mothers who have stunted toddlers have a basic education level (52.6%). Almost all parents who have stunting toddlers earn below the Regional Minimum Wage of Tuban City (76.3%). Almost all mothers who have stunted toddlers do not provide exclusive breastfeeding (78.1%). From the frequency distribution table that causes stunting in Mining Villages, namely maternal education factors, parental income factors, and exclusive breastfeeding. The biggest factor was found in stunting toddlers in the Semanding Tuban Health Center work area after filling out the questionnaire distributed were maternal education, parental income, and exclusive breastfeeding grouped by percentage distributive tables (Rahayu et al., 2022).

Study/title: Factors Influencing the Incidence of Stunting in Children Aged 2-5 Years at Ubud Health Center 1 Gianyar. This study aims to explain the factors that influence the incidence of stunting in children aged 2-5 years at Puskesmas Ubud 1 Gianyar. This research will be carried out in the working area of Ubud Health Center 1, Gianyar in January-June 2022. This research is a quantitative analytical research with a control case design, which uses 60 samples, consisting of 30 cases and 30 controls. Sampling uses a consecutive sampling technique, where all subjects who meet the inclusion criteria are included in the study until the required number of samples is met. Data collection was carried out by height measurement, interview, and filling out questionnaires. The study was analyzed univariately, bivariately, and multivariately. Based on the Chi-square test, a significant relationship was found between feeding patterns (p-value 0.038), exclusive breastfeeding (p-value 0.000), parental education level (p-value 0.001) and infectious diseases (p-value 0.019). Meanwhile, the utilization of health services cannot be measured in this study. This study concluded that low exclusive breastfeeding is the most influential factor on the incidence of stunting compared to other risk factors (odds ratio = 9.333) (Ratih et al., 2022).

DISCUSSION

Nutritional status is a factor that is related to and at risk of stunting in toddlers, (Nugraheni et al., 2020). The results of this study are in line with research conducted by Harianisa, (Harianisa et al., 2021) that energy consumption intake is associated with stunting events. Inadequate nutritional intake will affect physical growth in children (Dessie et al., 2019), health problems in children are associated with the incidence of stunting in toddlers, although in a multivariate analysis of health problems in children not as a risk factor for stunting the results of this study are in line with research conducted that infectious diseases are associated with the incidence of stunting in children under five in rural and urban areas (Amalia et al., 2024). Children's health problems can interfere with growth and development due to decreased food intake, decreased absorption of nutrients by the body which causes the body to lose nutrients needed for growth and development along with short mothers at risk of giving birth to children who are stunted 1.98 times greater than normal height (Laksono & Megatsari, 2020) .

Cultural problems can also affect the occurrence of stunting, namely in the practice of

early marriage (Nugroho et al., 2021), low education levels, and work and income problems are triggers for stunting (Rahmawati et al., 2020). That low income will affect the food provided by toddlers (Tekile et al., 2019). The quality and quantity of food is determined by income factors. The higher the purchasing power of the family, the better the quality of food consumed. Low family per capita income is more likely to be experienced by mothers who have stunted children. Per capita income affects the incidence of stunting in toddlers because families with sufficient income will be able to buy nutritious food and easily implement healthy living behaviors Low economy has an impact on the nutritional status of children which makes the child tend to be short or thin. (de Onis & Branca, 2016). This result is in line with research conducted by Ekawati (Ekawati & Rokhaidah, 2022), which shows that there is a significant relationship between household food security and the incidence of stunting in baduta aged 6-23 months in Sedayu District, Bantul, Yogyakarta (Nugraheni et al., 2020).

Children who lack vitamins B2, B6 and Fe and Zn mineral deficiencies also have a risk of becoming stunted (Beal et al., 2018). Sufficient family income will be better able to buy good and nutritious food ingredients. Inadequate nutritional consumption in toddlers is what causes children to become stunted. It can be explained that the higher the socioeconomic level, the greater the number and variation of the availability of the type of food provided at the household level.

On the other hand, socioeconomic level always has a positive relationship with education level. Those who are poor tend to be found to have low education which to fulfill daily life is still lacking. This job problem is also affected by low parental education so that it is difficult to get jobs (Hendra et al., 2016).

There is a significant relationship between stunting and the incidence of diarrhea. The implementation of a good diet by the mother is one of the factors that determine the amount of children's food intake. The high rate of difficulty eating in children who are stunted will be related to the child's nutritional intake and if it occurs in the golden age period will cause the child's brain and motor development to be inhibited. Mothers who often bring toddlers to posyandu then the nutritional status of toddlers will be well monitored and mothers will get a lot of information about the fulfillment of good nutrition for children, activeness from mothers themselves in the use of posyandu is very necessary to monitor toddler nutrition regularly.

Scientific Studies (Pillai & Maleku, 2019), which states that there is an influence between maternal education on the incidence of stunting. The mother's education level affects children born stunted short in stature. Mothers who have primary education tend to have stunted toddlers. This is because mothers who have a low level of education may be less able or difficult to absorb information about nutritious foods, healthy lifestyles, and clean behaviors. In line with research conducted (Dessie et al., 2019) shows that children who get exclusive breastfeeding tend not to experience stunting. Exclusive breastfeeding has a major contribution to the growth and development and endurance of children (Beal et al., 2018). Knowledge and practices of parents in providing balanced nutrition are very important for the prevention of stunting in children (Ulfah & Nugroho, 2020).

Information and knowledge that mothers have in feeding children can influence feeding behavior by parents to children. Cleanliness of the body, food and environment plays a major role in health maintenance that will prevent infectious diseases as a factor causing the decline in children's nutritional status Personal hygiene is one of the factors associated with the incidence of stunting, poor hygiene behavior by mothers will cause children to develop diseases that will affect the child's nutritional condition (Vilcins et al., 2018).

CONCLUSION

Based on the results of the literature review, a factor analysis of factors affecting stunting was obtained from the results of research of nine journals show the results that various factors that influence stunting, both singly and simultaneously, namely stunting factors can be influenced by poverty, social and cultural, increased exposure to infectious diseases, food insecurity and community access to health services alone or together.

SUGGESTION

The author hopes that this research will further greatly help how to do health promotion, case finding and prevention, and many sectors must be involved and work together for the problem of stunting.

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This research is independently funded by researchers, so it can be carried out flexibly. This flexibility results in the research process being able to run in accordance with the research methods set by the researcher, so that the quality of research is maintained.

CONFLICT OF INTEREST

The results of this research are purely an activity to develop stunting theory academically, without any conflict of interest with any party.

AUTHORS CONTRIBUTION

All authors fully contributed in the research from the beginning until the publication of the research.

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