DOI: https://doi.org/10.53555/nnmhs.v9i7.1751 Publication URL: https://nnpub.org/index.php/MHS/article/view/1751

THE RELATIONSHIP BETWEEN SOCIO - ECONOMIC FACTORS AND RISK OF STUNTING : A SYSTEMATIC REVIEW

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Abstract

Background: *Stunting describes a chronic nutritional problem that is influenced by the condition of the mother/prospective mother, fetus and baby, including diseases during infancy. Stunting is not only related to health problems but is also affected by various other conditions that indirectly affect health.*

Aim: *The goal of this study is to showed the relationship between socio - economic factors and risk of stunting.*

Methods: *By comparing itself to the standards set by the Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA) 2020, this study was able to show that it met all of the requirements. So, the experts were able to make sure that the study was as up-to-date as it was possible to be. For this search approach, publications that came out between 2013 and 2023 were taken into account. Several different online reference sources, like Pubmed and SagePub, were used to do this. It was decided not to take into account review pieces, works that had already been published, or works that were only half done.*

Result: *In the PubMed database, the results of our search brought up 119 articles, whereas the results of our search on SagePub brought up 87 articles. The results of the search conducted for the last year of 2013 yielded a total 18 articles for PubMed and 12 articles for SagePub. In the end, we compiled a total of 24 papers, 15 of which came from PubMed and 9 of which came from SagePub. We included six research that met the criteria.*

Conclusion: *Consistently, socio-economic status greatly influences the nutritional status of children, while the level of education and knowledge of the mother is the most influential.*

Keyword: *Children; Nutrition; Socio - economic factors; Stunting*

INTRODUCTION

Stunting is often also called stunting or stunting, a condition where children under five years of age (toddlers) fail to grow due to chronic malnutrition and repeated infections that occur in the first thousand days of life. A matter of great concern, Indonesia is included in the country with the largest inequality in the 2020 Global Nutrition Report.[1] Based on data from the World Health Organization (WHO), Indonesia is the third highest in the South-East Asia Regional (SEAR), with an average of 36.4% from 2005-2017.[2] In 2019 Indonesia is included in a region with a high prevalence of stunting.[3]

Stunting is a health problem in developing countries, an estimated 144 million children under the age of 5 are stunted.[3] One of the 2025 health development targets is to reduce the prevalence of undernutrition in children under five.[4] The World Health Assembly (WHA) targets to reduce the incidence of stunting by 40% in 2025 from the prevalence in 2013, which was around 22%.[3] Based on Basic Health Research data in 2018 there was a decrease in the incidence of stunting at the national level by 6.4% in a 5 year period from 2013 (37.2%) to 2018 (30.8%) for toddlers who were normally stunted, there was an increase of 9.2% from 2013 to 2018.[5]

Based on the results of the 2019 Indonesian Toddler Nutrition Status Study data, the highest incidence of stunting was in East Nusa Tenggara at 43.82% and the lowest was in Bali 14.42%.[6] Stunting is a condition where height for age is < -2SD from the WHO media for children aged 0-59 months. The condition of stunting has the effect of disrupting brain development in the form of reduced capacity to be better educated so that opportunities to get a good job are reduced in the long term and in the short term it interferes with cognitive function. In addition, the effect of stunting in adults causes obesity, diabetes, and other metabolic disorders.[2]

Stunting describes a chronic nutritional problem that is influenced by the condition of the mother/prospective mother, fetus and baby, including diseases during infancy. Stunting is not only related to health problems but is also affected by various other conditions that indirectly affect health. Specific nutrition interventions are generally carried out in the health sector, but only contribute 30%, while 70% is the contribution of sensitive nutrition interventions involving various sectors such as food security, availability of clean water, sanitation, poverty alleviation, education, social affairs, and so on.[2] The purpose of this research is to demonstrate the relationship between socio - economic factors and risk of stunting.

METHODS

In accordance with the Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA) 2020 criteria, the author of this study confirmed that it was up-to-date and adhered to all applicable standards. This phase is crucial because it ensures the accuracy of the investigation's findings. This study discovered a relationship between socio - economic factors and risk of stunting. Reviewing previous research on the subject is the most time-efficient method for attaining this goal. Given the purpose of the essay, this section will emphasize the relevance of the stated topics.

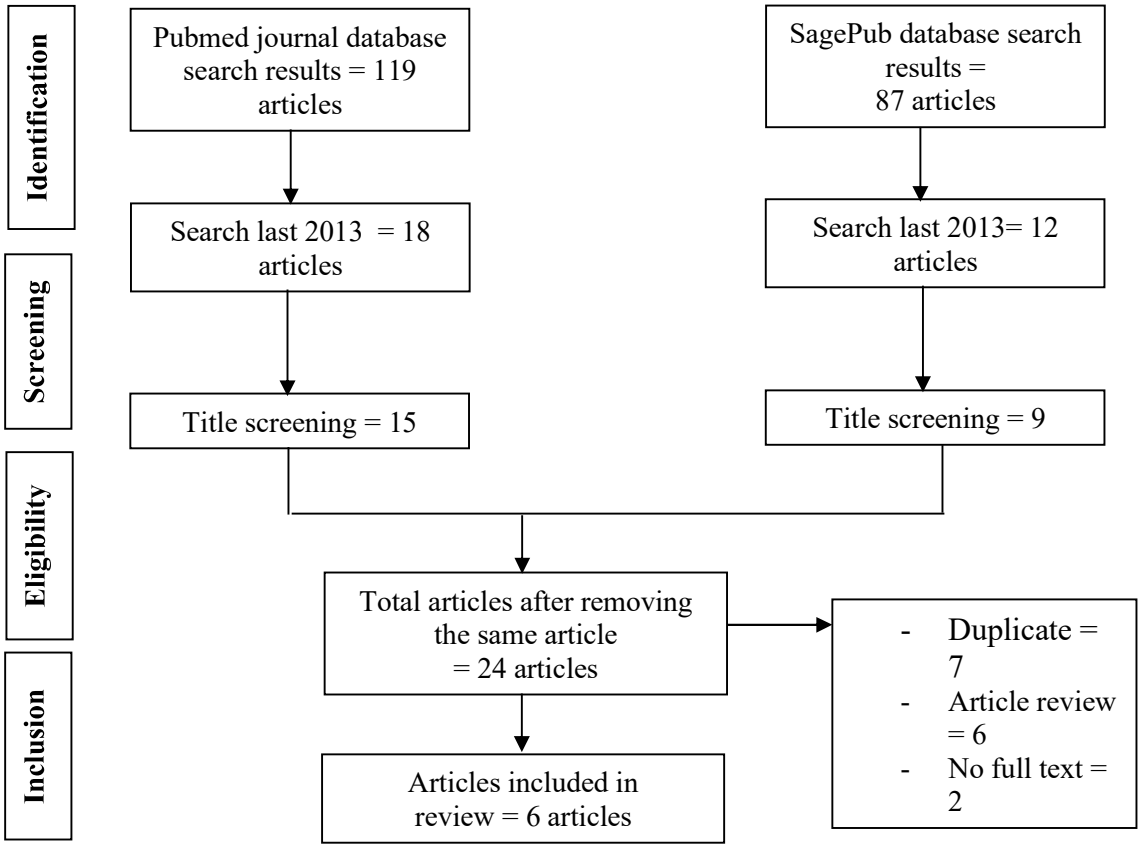

Figure 1. Article search flowchart

Researchers were asked to produce documentation that they met the following standards in order to participate in the investigation: 1) The paper must be written in English and demonstrate the relationship between socio - economic factors and risk of stuntingin order to be eligible for publication. 2) Works published after 2013 but before the evaluation period are eligible. Examples of research that cannot be published include editorials, applications without a DOI, previously published review articles, and submissions that are almost identical to previously published journal articles.

We used between "socio - economic factors" and "stunting" as keywords. The search for studies to be included in the systematic review was carried out from June, 1st 2023 using the PubMed and SagePub databases by inputting the words: *(("socioeconomic factors"[MeSH Terms] OR ("socioeconomic"[All Fields] AND "factors"[All Fields]) OR "socioeconomic factors"[All Fields]) AND ("growth disorders"[MeSH Terms] OR ("growth"[All Fields] AND "disorders"[All Fields]) OR "growth disorders"[All Fields] OR "stunting"[All Fields] OR "stunted"[All Fields])) AND ((y_10[Filter]) AND (clinicaltrial[Filter]))* used in searching the literature.

We looked at both the summary and the title to figure out if the study was good. They looked at more historical records than before. Several studies that all used the same methods back up this finding. To comment, you have to use English that hasn't been written before. The systematic review only looked at works that met the standards for inclusion that had already been set. There are less search results shown. Not enough study and thinking. In this part, there is a rating. In the study paper, there is information about the subjects, authors, date, place, topic, and parameters. The story says who wrote it and when it was published. Endnote got rid of any copies that it found.

Two people looked at the titles and abstracts of the pieces that were sent in. Their long articles were looked over to see if the study could be done and to get information. GWAS isn't the only health topic that has been the subject of conferences and study. The people who did the evaluation came to this opinion. Before choosing which papers to look into, each author looked at the studies' abstracts and titles. Then, all of the articles that meet the standards for inclusion and are therefore eligible to be added will be looked at. After the basics have been taught, we will choose review topics. This is how study and review articles are chosen.

RESULT

In the PubMed database, the results of our search brought up 119 articles, whereas the results of our search on SagePub brought up 87 articles. The results of the search conducted for the last year of 2013 yielded a total 18 articles for PubMed and 12 articles for SagePub. In the end, we compiled a total of 24 papers, 15 of which came from PubMed and 9 of which came from SagePub. We included six research that met the criteria.

Cameron, et al (2021)[7] conduected a clustered randomised trial in 160 villages in Lao PDR to find out how well financial rewards work with Community-Led Total Sanitation (CLTS), a widely used program to change people's habits. Randomly, villages were put into four groups. All four groups got CLTS, but the type of subsidy they got (none, family, village, or both) was different. Using data from a random sample of families with young children and administrative data from villages, we show that household incentives led to more people using sanitation among the poor, while village incentives led to more people using sanitation mostly among the non-poor.

Ahmad, et al (2020)[8] estimates revealed a higher prevalence of stunting (18.58), wasting (28.43), and underweight (19.54) among children, notably in rural areas of the Multan study district. Stunting status was significantly associated with children of some month (odds ratio [OR] = 1.247, CI 95% = 0.543–1.546), family size (OR = 0.589, CI 95% = 0.431–3.715), maternal education (OR = 1.432, CI 95% = 0.528–1.972), wealth quintile (OR = 2.174, CI 95% = 1.234–3.376), and sanitation facility (OR = 0.789, CI 95% = 0.689–1.976). Wasting status was most strongly associated with male children (OR = 1.208, 95% CI = 0.769–1.352), urban children (OR = 0.594, 95% CI = 0.476–1.987), and food insecurity (OR = 1.367, 95% CI = 0.769–2.537). Underweight status was associated with male gender (OR = 1.213, CI 95% = 0.821–2.897), incomplete immunization (OR = 1.342, CI 95% = 1.041–2.658), and access to purified water (OR = 0.689, CI 95% = 0.571–2.771).

Table 1. The litelature include in this study

Author	Origin	Method	Participant	Result
Cameron, 2021[7]	Australia	Cluster randomised trial	160 villages	The improvement of sanitation led to favorable health spillovers, such as a reduction in the likelihood of childhood stunting by three percentage points for every ten percentage point increase in the coverage of village sanitation by its inhabitants.
Ahmad, 2020[8]	Pakistan	Cross sectional study	2,497 participants	This study estimated the prevalence of severe malnutrition due to reduced socioeconomic status among the majority of the community's population, particularly in rural areas. Through appropriate economic, political, and social policy measures, the government must improve economic opportunities, promote healthcare education, expand nutritional access, and instill better personal hygiene practices. The outcome of these policies will be an increase in individual economic resources, nutritional security, increased maternal education, and a contribution to the improvement of infant health.

Uwiringiyimana, 2019[9]	Rwanda	Cross sectional study	203 patients	In addition to the elements that are known to impact height-for-age, our study confirms the importance of environmental factors in determining the height-of-age of children in Rwanda. These environmental factors include things like the child's environment and the mother's environment. When developing a comprehensive strategy to combat stunting, it is essential to take into account the environmental factors that influence anthropometric status.
Utami, 2019[10]	Indonesia	Cross sectional study	192 participants	In order to minimize the prevalence of stunting in children under the age of five, multi-sectoral and integrated initiatives are required to raise household incomes as well as improve knowledge and the capabilities of families.
Emamian, 2014[12]	Iran	Cross sectional study	1,395 participants	There was a big difference between the social classes of the children who were studied. If all the different groups in Iranian society got the same amount of schooling for their mothers, 70% of the social and economic differences would go away. Even among people with high incomes, the average height-for-age Z-score was lower than world standards. These problems show how important it is to try new things, especially to improve the education of mothers.
Assefa, 2013[13]	Ethiopia	Cross sectional study	2,084 participants	Underweight is linked to factors such as age of the adolescents, gender, educational status, employment status, and type of last school attended; stunting is linked to factors such as place of residence, household size, household income, educational status, employment status, and type of last school attended, as well as abdominal pain. According to the data, socioeconomic factors are linked to low body mass index and short stature.

Utami, et al (2019)[10] conducted a study with Indonesia people. They showed to a much greater extent than any other factor, the prevalence of stunting in children under the age of five can be attributed to socioeconomic circumstances, and in particular, the level of income in the home. In order to minimize the prevalence of stunting in children under the age of five, multi-sectoral and integrated initiatives are required to raise household incomes as well as improve knowledge and the capabilities of families.

Emamian, et al (2014)[12] conducted a study with Iran participants. They showed concentration score for socio-economic inequalities in the prevalence of stunting was 0.1913. The education level of the mother was a factor in the decomposition of this score to the extent of 70%. The mean height-for-age Z-score was -544 for those with low socioeconomic status and -335 for those with high socioeconomic status. The education level of the mother was the element that most contributed to the disparity between these two groups.

Assefa, et al (2013)[13] showed age, highest grade completed, household income, and work were positively linked with BMI for Age z-score, while age, highest grade completed, and job were positively associated with Height for Age z-score. Last attended in community school, highest grade completed, and job were positively associated with Height for Age z-score. On the other hand, male gender was shown to have a negative association with BMI for Age z-score, and male gender, the most recent community school attended, abdominal discomfort, and household size were all found to have a negative association with Height for Age z-score.

DISCUSSION

Malnutrition in toddlers is a complex public health problem. The root of the problem is related to food security and nutrition, poverty, education, security, availability of clean water, environmental hygiene and sanitation, as well as related to emergency or disaster situations. These various conditions will affect purchasing power, access to food, vulnerability to disease, access to information and access to services which underlie the direct and indirect causes of malnutrition.[20]

The main problems causing malnutrition are poverty, low income levels, inadequate parental education and knowledge. Some economists argue that the problem of poverty is the root of the problem of malnutrition. Poverty makes it difficult to achieve access to food in the household so that people will lack the various nutrients needed by the body.[14] Parenting is a parenting practice that is applied to toddlers and health maintenance. Parenting practices are parenting practices that are applied by mothers to children under five which are related to the way and situation of eating.[12,15]

Children who come from families with low socioeconomic levels are very vulnerable to malnutrition. They consume less food (energy and protein) than children from well-to-do families. This difference can be caused by various factors, for example the direct cause, namely in infants from poor families the intake of nutrients is lower compared to toddlers from non-poor families as well as the condition of poor sanitation in poor families resulting in the occurrence of infectious diseases.[14,16]

The high prevalence of underweight and stunting due to malnutrition is closely related to the problem of poverty. Poverty can be an important cause of malnutrition. On the other hand, malnutrition can impoverish, thin and short children who

are easily sick, less intelligent and unproductive due to malnutrition. This situation has an impact on the low competitiveness of work, the level of work with low incomes which can impoverish. One of the characteristics of poverty is the inability to obtain balanced nutritious food so that it is vulnerable to various nutritional deficiencies.[14,16]

The level of family income is an external factor that affects the nutritional status of toddlers. Families with middle to lower economic status allow food and nutrition consumption, especially for low-fives and this affects the nutritional status of children under five.[17] Toddlers who have parents with low income levels have a 4 times greater risk of suffering from poor nutritional status compared to toddlers who have parents with sufficient income levels. Economic factor is a determinant of nutritional status that can affect the nutritional status of children. Low economic status or poverty occupies the first position in society which causes malnutrition.[18,19]

Malnutrition in children is a public health problem because of the country's poor resources. According to Engel, Ukhuwani and Suchindra in their research in urban areas in Guatemala found that mother's income had a positive effect on children's nutritional status. Adequate family income will support the growth and development of children, because parents can provide all the needs of children, both primary and secondary.[18,20] Begin observed that socioeconomic factors predicted toddler nutrition. Poverty strongly impacts children's health, including mortality. Most families that fail to perform their duties are poor. Study discovered that household-scale food insecurity caused most economic crisis-related malnutrition, especially among the poor.[19]

Parents' educational level is significantly related to children's health status and welfare. Mother's education is closely related to her awareness of the health of her children and family.[21] It is essential for a mother to have knowledge about stunting in order to protect her child from developing the condition. A mother who is contemplating becoming pregnant should be aware of the factors that contribute to stunting; this will allow the mother to make appropriate nutritional preparations before to pregnancy, to learn how to properly nourish herself during pregnancy, and to learn how to properly nourish her child after she has given birth. This will, in turn, reduce the prevalence of stunting.[55]

So that good knowledge from a mother is needed. In this study, good knowledge of mothers about stunting is a protective factor 0.04 times against the incidence of stunting in their babies. Another study by Mawarti said that good knowledge of mothers about stunting would prevent stunting in their babies.[55] Other studies have shown that children of parents at all income levels tend to have better health conditions in mothers who are more educated.[12] The level of mother's education will also affect the quality and quantity of food intake for toddlers which causes the toddler to experience malnutrition.[22] Mothers manage family meals. Mothers' understanding of toddler nutrition includes all the nutrients their children require and how to use them in daily living.[14,16]

CONCLUSION

Consistently, socio-economic status greatly influences the nutritional status of children, while the level of education and knowledge of the mother is the most influential.

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