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REVIEW ARTICLE

Effect of Stimulus and Improving Nutrition on Growth in Children 6–24 Months – A Comprehensive Literature Review

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Abstract

Background: The vulnerability of children to risk factors that can precipitate health problems presents a critical concern. This review article offers a comprehensive introduction to assess how stimuli and dietary enhancements affect the growth and development of children between the ages of 6 to 24 months. **Methods:** A literature review was conducted to find works published in English; The search was conducted using electronic databases such as ProQuest, PubMed, Scinapse, Science Direct and Open Access Journal Directory (DOAJ). Between 2016 and 2021, several studies were published on the impact of stimuli and dietary improvements on children's development. **Results:** Of the 2,458 articles selected in the selection process, 244 were evaluated. Subsequently, 27 articles were selected to analyze the impact of stimulation and feeding on stunting in children. It was found that optimal, intensive stimulation can maximize growth, and that lipopic nutritious additives (SQ-LNS) can also promote children's growth. **Conclusion:** Based on the articles that has been reviewed, the proper stimulation, preferably given within the first 1,000 days of life or as early as possible, will optimally improve growth in the child if it is supplied intensively by parents via physical, mental, and social aspects. Such stimulation should be coupled with a focus on improved nutrition, given with an emphasis on proper child feeding practices, the use of iodized salt, and the provision of nutritious supplements; this provided stimulation and nutrition can improve child growth, anemia, and mortality.

Keywords: Stunting, Development, Stimulation, Supplementation, Early childhood.

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Introduction

Children represent a group that is very vulnerable to risk factors that can lead to health problems. The World Health Organization (WHO) stated in 2016 that the world is currently facing a "triple burden of malnutrition", or three problems in child health [1]. Stunting is a problem related to chronic malnutrition caused by inadequate nutritional intake for 10 years, as well as the presence of chronic infectious diseases characterized by the weight of the child,[2] below the standard value. According to UNICEF's framework, there are 3 main categories that determine child malnutrition, one of which is pesos [3].

The stunting rate in Indonesia is very alarming; therefore, this is a national problem that must receive the government's full attention in order to reduce it. In 2020, the maximum inhibiting occurrence was in the West Sulawesi Province, reaching 40.38%, making it the area with the second-maximum amount of inhibiting in all of Indonesia. For the problem of stunting, West Sulawesi is currently the second highest at the national level at 45.98% (Majene Regency is the highest in West Sulawesi).

The Global Nutrition Report found that Indonesia ranks 108th out of 132 countries with a stunting prevalence of 29.9% and Indonesia is the second highest country after Cambodia in terms of stunting in Southeast Asia [4]. Based on the results of Riskesda (2018), as many as seven million Indonesian children experience growth failure or stunting where the cause is not only triggered by the problems of poverty but also from an unhealthy lifestyle [5]. Low parental income is not spent enough on nutritious needs [6], causing the risk of stunted growth and the risk of infection due to lack of access to health care services [7,8]. Poverty is the main cause of malnutrition, which is due to a lack of micronutrient values that causes stunting and low body weight [9].

The risk of stunting also occurs due to the low level of maternal education and is the biggest predictor of stunting [10]. The consumption pattern is relatively worse in Indonesia, resulting in the prevalence of stunting increasing beyond the limit recommended by WHO. In addition to nutritious problems, stunting also occurs due to a lack of stimulation in children's diet patterns during the first 1,000 days of their lives, resulting in a growth delay in children [11]. Inappropriate complementary feeding practices [12,13], suboptimal breastfeeding practices, unhealthy diet and lifestyle [14], Poor nutritional status is a major contributor in children under 2 years of age [15].

The effects of stunting in the short term are both cognitive and motor impairment [16], social, emotional [17], and verbal disturbances in children that are not optimal, increased child

morbidity and mortality [18,19], caused by pathological disorders [20], metabolic disorders, and increased child health costs. Long-term effects are incorrect posture during adulthood (being shorter than normal), loss of potential physical growth [21], reduced neurological development [22,2], reduced work productivity in adulthood due to the low level of education [5], improved danger of overweightness and other diseases, and reduced reproductivity [23,24]. Based on research, it has been observed that children who suffer from stunting are also at risk of developing degenerative diseases as adults.

Fulfillment of nutritious needs in children should be the main priority to prevent the condition of stunting from developing. Nutritious supplementation in malnourished children has an effect on their growth [25]. Starting from infancy, proper nutritious intake is very important so that stunting does not occur later on. Inadequate food intake and disease are considered the cause of malnutrition and can also cause stunting [4]. However, improving the baby's diet through interventional complementary feeding has been shown to only slightly reduce stunting [19]. The existence of different types of food will affect the growth and nutritional status of children, so mothers should choose the right types of food for their children [26]. The behavior of parents in intensively stimulating growth will improve the quality of the children's development, making conditions far more optimal [27,28]. The role and function of parents in providing parenting and stimulation patterns make children grow better and stronger [25, 29].

Literature Review Methods

The method used to compile a literature review is an electronic database. This review used ProQuest, PubMed, Scinapse, Science Direct, and DOAJ databases to search journal articles. The keywords used in the journal search were *stunting, stimulation, growth, improved nutrition, children aged 6–24 months, and child development*, totaling 244 full-text articles, which were then narrowed down to 27 articles according to the inclusion criteria for stimulation of nutrition and growth in stunted children.

Results and Discussion

Interventions with adequate nutritious adequacy and various stimulations can have an impact on intelligence and physical growth. These stimuli should be given as early as possible in the critical period of the child to improve upon their growth. For Costa, early childhood inspiration may be related to future health issues related to parental behavior and care, including the child's feeding history [30]. When it comes to explaining the relationship between knowledge and attitudes of mothers about the nutritious status of toddlers in the first 1,000 days of their life [31] Where mothers with knowledge and perspective on the importance of the first 1,0 days of life should be provided with the best environment as soon as possible, which will be able to improve the growth of the baby, although the same result will not be the same when stimulating a normal baby [32]. Stimulation of a stunted child is only optimal when administered as a whole in the physical, mental, and social results of the literature review. In harmony with these consistent research results, Nahar I. et al. states that integration into the psychosocial stimulation treatment of malnourished children should be carried out in hospitals and by making home visits to 6-month-olds, which would be very effective in increasing child development [33]. Complementary food at the age of 6 months and continued breastfeeding until the age of two is a form of nutritious improvement [34,35].

Nutritious problems in children can especially be attributed to the lack of micronutrients that inhibit fetal growth, stunting, wasting, and less-than-optimal breastfeeding. Provision of proper food (MP ASI) for children below the age of five can help children grow [9] and develop and fulfill their full potential while preventing stunting [36]. In a literature review of three journals that discuss the effectiveness of improving nutrition in child growth, the researcher assumes that nutrition intervention must start early; this is in line with the government program Catch Up Growth, which sponsors activities in stunting children that can improve brain development and height (although this is not as optimal as when this activity is given to children who are not stunted, meaning that growth in children who suffer from stunting can still be pursued even though it is not optimal). This activity must be carried out until the child's growth stops, usually when they are a teenager. The application of a balanced nutritious diet (which must include protein, carbohydrates, fat, vitamins, and minerals in the correct proportions) will have an impact on increasing height [37], but it can also make the immune system of stunting sufferers stronger [38].

The results of the literature review are also in line with a study by Tafese, which stressed the need for implicating child feeding practices [39] that are appropriate, such as the utilization of iodized salt. Improved primary health care associated with micronutrient supplementation of micro and micronutrient supplementation in the form of zinc and amino acids, as well as giving antibiotics to children [40, 41] and within families is also important to tackle child malnutrition [42,39]. Adequate supply of lipid nutritional additives based on environmental amounts for infants (SQ-LNS) or wawamum was reduced by 10% in the intervention group. This coincides with the study by Khan et al, [41] which has made the delivery of wawamum in children between 6 and 23 months can reduce the risk of regression by 51 months. The results of the literature review were also reinforced by the company Galasso et al. (2019), which suggest that SQ-LNS and domestic visits can have an effective view of chronic malnutrition [43].

Conclusions

Proper stimuli given as early as possible will optimally improve growth if it is given by parents with knowledge about the importance of the first 1,000 days of life. This needs to be given intensely via physical, mental, and social aspects and nutritious improvement, with sufficient emphasis on proper child feeding practices, the use of iodized salt, and the provision of nutritious supplements, which can improve child growth, anemia, and mortality. It is hoped that the results of this literature review will serve as a basis for improving children's growth through psychosocial stimulation activities and nutritious supplementation.

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