

Conference Paper

## Literature Review The Effect of Fish Nuggets on Weight and Height Increase in Toddlers

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### ABSTRACT

The high prevalence of malnutrition and stunting in Indonesia is evidence of a lack of protein consumption in toddlers. One source of protein that has the perfect protein content is fish because fish contains essential amino acids that meet the needs of the body. The lack of fish processing that is in demand by toddlers is the reason for the lack of fish consumption in Indonesia. Fish consumption in Indonesia is shown to be lower than in Singapore and Malaysia. Nuggets are one of the processed foods that are in demand by children because of their various shapes. It is expected that many studies on the effect of fish-based Nuggets can be used as PMT for toddlers with malnutrition and stunting. Objective: Analyzing the effect of giving fish nuggets to increase weight and height in toddlers. Methods: This study is a literature review sourced from Google Scholar, PubMed, Proquest, and ScienceDirect related to the effect of giving fish nuggets on the weight and height of toddlers. The Data used in the literature review is research conducted over the past 10 years. Results and discussion: from the results of the selected articles obtained several 4 by the criteria and in line with the objectives of the study. Conclusion: there is an effect of giving fish nuggets to toddler weight and there is no effect of giving fish nuggets to toddler height.

*Keywords: Effect fish nugget, weight, height, toddler*

### Introduction

The high cases of malnutrition in Indonesia can cause a decrease in the quality of Human Resources (lost generation). In addition, it can increase the morbidity and mortality rate in toddlers (Bait et al., 2019) the results of riskesdas in 2018, states that malnourished and malnourished children in Indonesia are 17.7% according to the BB/U indicator. As many as 13.8% of toddlers in Indonesia suffer from malnutrition and 30.8% of toddlers in Indonesia are included in the short and very short (Kemenkes RI, 2018). Lack of animal protein consumption is one of the factors of malnutrition that can lead to disruption of the process of growth and development in toddlers (Mahmudiono et al., 2018). Fish is one of the abundant natural resource potentials in Indonesia, which is an archipelagic country. High levels in fish can be one way to overcome protein deficiency (Silaban et al., 2017). Where this protein serves as a building agent, and regulatory agent and serves as a source of energy. Protein is divided into two namely animal protein sourced from animals such as meat, eggs, and milk. Whereas, vegetable protein comes from plants such as seeds and nuts (Saranani et al., 2023).

*Nuggets* its one of the processed foods that are very liked by children because of their diverse shapes. In addition, *Nuggets* are processed that mothers like because the processing is practical and easy to serve. Processing *Nuggets* made from fish is still very difficult to find, even though the content of fish is very useful. Such as mackerel and catfish are examples of fish that are widely

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studied because they contain many health benefits (Komariyah, & Setiawan, 2009). Some of the benefits of consuming fish such as lowering blood pressure, cholesterol, and weight, containing 10 essential fatty acids, preventing cancer, preventing premature aging, and stimulating brain growth and intelligence (Kresnasari et al., 2019). WHO recommends the consumption of fish at least one to two times in one week. Fish consumption habits in Indonesia are still lagging 2 times lower than Malaysia and Singapore (Nalendrya et al., 2016). This is evidence that there is still a lack of diversification of processed fish-based foods that are favored by children.

## Material and Methods

This study used a literature review using the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-analyses) method. The article in this research is sourced from Google Scholar with the keyword “effect of fish nuggets, weight, height, toddler” while for article searches sourced from PubMed, Proquest, and ScienceDirect the keyword “Effect Fish Nuggets, Weight, Height, Toddler”.

Criteria in this study The articles used are sourced from the last 10 years, using Indonesian and English, the articles used are still relevant regarding the influence of fish nuggets, increased body weight and height, and toddlers.

## Results and Discussion

The articles that we find are 31 articles were obtained, but in this literature review, only 4 articles sourced from Google Scholar were included in the inclusion criteria.

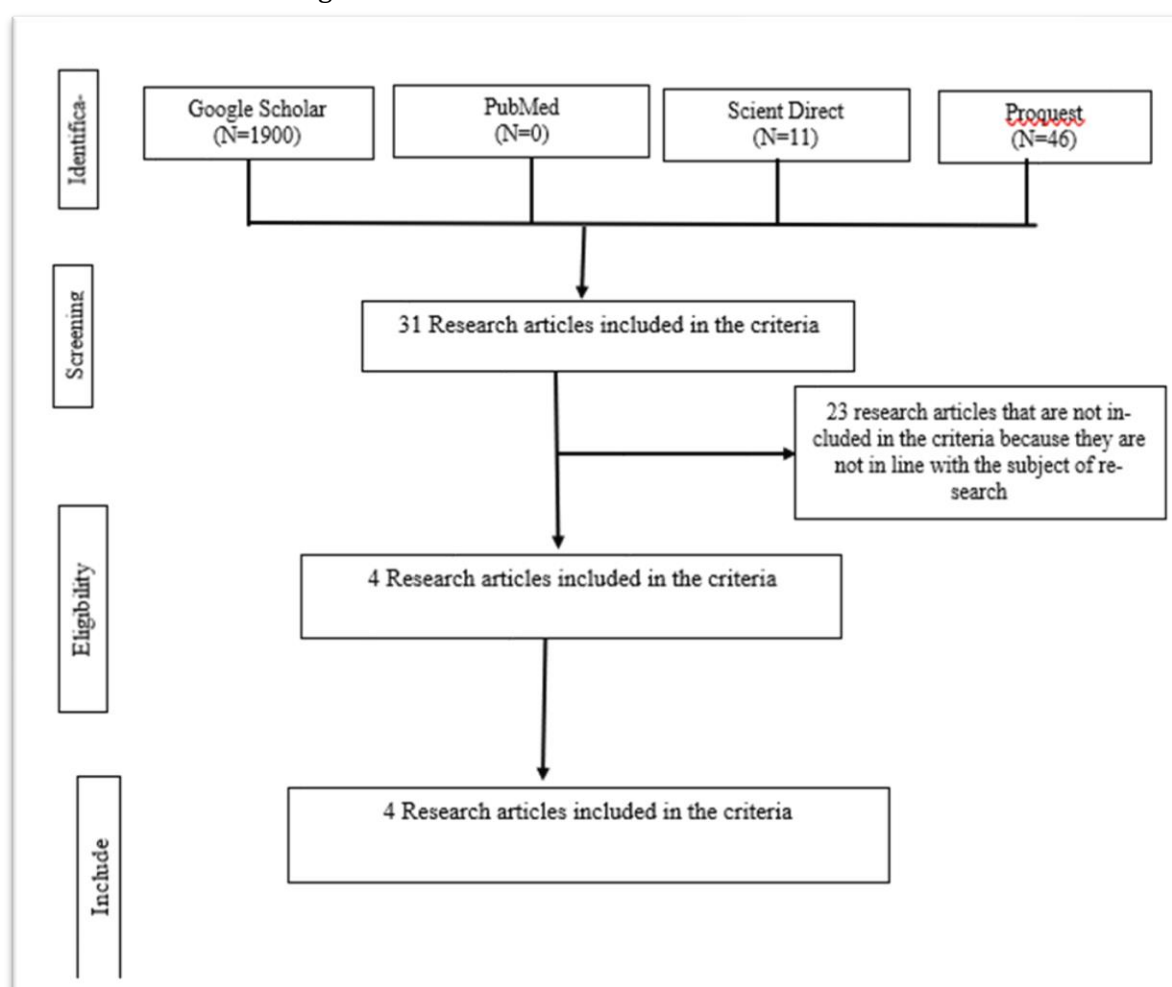


Figure 1 PRISMA flowchart literature search

Table 1. Article search results

No	Author	Title	Method	Research subject	Research result
1	"Rifdi, F, 2022"	"Pengaruh nugget ikan bilis terhadap kenaikan berat badan pada batita"  <i>["The effect of anchovies nuggets on weight gain in toddlers"]</i>	<i>Quasi Experimental Pretest Posttest Design</i>	The number of research subjects was 10 malnourished toddlers	There is an effect of giving bilih fish nuggets in increasing the weight of toddlers
2	"Aryana, 2022"	"Pengaruh Pemberian Nugget Ikan Bandeng ( <i>Chanos chanos</i> ) Terhadap Status Gizi Kurang Pada Balita Usia 1-5 Tahun"  <i>[The Effect of Giving Milkfish Nuggets (<i>Chanos chanos</i>) on Malnutrition Status in Toddlers Aged 1-5 Years]</i>	The experiment was carried out in two stages. The first stage used the Completely Randomized Design (CRD) method. The second research used a pre-post test one group design.	The number of subjects under five was 20 people	There are differences in nutritional status before and after the intervention, which means there is an influence of giving milkfish nuggets on the weight gain of toddlers.
3	"Septiana, 2022"	Pengaruh Nugget Ikan Kakap Terhadap Perubahan Tinggi Badan Balita Stunting Usia 24-59 Bulan Di Wilayah Puskesmas Ala  <i>[The Effect of Snapper Nuggets on Changes in Height of Stunted Toddlers Aged 24-59 Months in the Puskesmas Ala Area]</i>	Quasi-Experimental Nonequivalent Control Group Design Method	With a total sample of 36 people, 18 in the control group and 18 in the intervention group.	There was no effect on increasing height by giving fish nuggets

*To be continued...*

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4	"Veronica 2023"	Efektivitas Pemberian Tinggi Terhadap Berat Badan Pada Balita Wasting Usia 12-59 Bulan Di Puskesmas Taman Bacaan	Quasi Experimental research design with pre-post test control group design	52 toddlers with 26 children each for the control group and treatment group.	There is an effect of giving fish nuggets on increasing body weight in wasting toddlers
		[ Effectiveness of Providing High Protein Nuggets on Weight Gain in Wasting Toddlers Aged 12-59 Months at Taman Bacaan Public Health Center]			

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Toddlers are children aged one year to five years or in the calculation of the child's month aged 12-59 months. This period is often said to be the Golden age phase because this time is a critical period for the growth of toddlers, besides this period will not be repeated (Gunawan, 2018). Nutrition plays an important role in the growth and development stage of toddlers. Protein is a macro nutrient that has a very important role in maintaining body cells and tissues. In addition, protein also hand in growth and development in toddlers and plays a role in the formation of antibodies. Therefore, toddlers whose protein intake is a deficit will be susceptible to infectious diseases that result in disruption of appetite in children so the child's growth process will be disrupted (Nugraheni et al., 2020).

Supplementary feeding (PMT) is an intervention program for children who are malnourished so that the provision of PMT can meet the nutritional needs and achieve nutritional status in toddlers. Supplementary feeding for toddlers must of course contain complete nutrients. In addition, supplementary feeding for toddlers can also be based on local food that is easy to find with low prices (Handayani, 2017). The local food-based approach is one of the most effective specific interventions in preventing malnutrition and maintaining good nutrition in poor families. Supplementary feeding with local food can be an alternative to overcome the nutritional problems that occur in the community because people are not able to access at low prices, more varied and contain high nutrients, such as fish-based Nuggets (Rifdi & Rahayu, 2022).

The very high content of protein, fat, and micronutrients in fish is one reason it can increase weight and height in toddlers (Erdiana et al., 2021). In line with research conducted by Aryana et al. (2022) and Veronica et al. (2023) each given fish nuggets for 30 days and 21 days showed the effect of giving fish nuggets on toddler weight. Consumption of foods that contain high protein of 20-25 g such as fish, meat, chicken, and milk as well as sports products can be beneficial in muscle growth and strength. Lack of protein consumption in toddlers can make children susceptible to infectious diseases that result in decreased appetite and make children thin (wasting) (Aryati et al., 2014). Meanwhile, giving fish nuggets to toddlers for 30 days showed no stiffeners to increase height in toddlers (Septiana et al., 2022). This is not in line with research conducted by Syarfaini et al. (2018) that there is effect of giving fish nuggets to increase the average value of height in elementary school students in the intervention group for 30 days is more significant than the

control group. This is because growth is a benchmark in determining the health status of toddlers, besides that growth is continuous and inconsistently (Husna, 2013).

## Conclusion

Some research results showed the effect of giving fish nuggets on toddler weight, but there was no effect of giving fish nuggets on height increase in toddlers. Growth in toddlers is constant and different for each toddler. Many other factors affect growth in toddlers such as energy intake, protein intake, height's mother of the toddler, pregnancy distance, and economic status. The next study can examine the influence of fish nuggets on factors that affect the increase in height in toddlers.

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