EFFECT OF MALNUTRITION ON THE OCCURRENCE OF ANEMIA: A systematic literature review

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Abstract

Malnutrition is increasingly recognized as common and important health problem in many developing countries, as it has a serious long-term consequences for the child and the negative effects on their development. The most common form of malnutrition is iron deficiency, especially among children. Lack of iron is one of the most widespread nutritional disorder in developing countries and developed, so that a global health problem. Anemia can affect cognitive progress, performance in school, physical growth and behavior, and the ability of your child's immunity to disease. Meeting the needs of nutrition and micronutrient is especially important in children's development and their growth. Objective: Systematic this review is to conclude on the effect of malnutrition with the incidence of anemia in children in ASIA. Great influence on the incidence of malnutrition, anemia in children by 41% -70%. Malnutrition is one of the causes of anemia in children in developing countries in ASIA, and is also influenced by other factors, such as household socioeconomic status, type of fuel used in household and sanitary facilities, education level mother, children younger age, number of siblings and fever, ASI and IMD, Gender, Diarrhea in 2 weeks, anemia status of breastfeeding mothers.

Keywords: malnutrition, anemia

1. INTRODUCTION

Early childhood is the most important lifetime for cognitive, social, emotional, physical, motor development and cumulative learning for life. The development of children is the first priority in the country's development agenda, not because they are the most vulnerable, but because they are the highest assets of the country as well as the country's future human resources. Malnutrition is increasingly concerned about general and important health issues in many developing countries, because it has serious long-term interests for children and a negative influence on their development [9].

Therefore, adequate nutrition in the first 1000 days of life is an absolute necessity for every child, and this must start from the time the baby is still in the womb, especially iron as one of the micronutrients needed when pregnant women determine the quality of children's health in the future. Dr. Murti Andriastuti Sp.A (K) as Chair of the Iron Deficiency Anemia Task Force, Indonesian Pediatrician Association (IDAI) attending the 2018 Merck Pediatric Forum explained, "Iron Deficiency Anemia (ADB) is a common health problem in children. ADB's long-term complications can include disorders of the cardiovascular system, immune system, developmental disorders, psychomotor and cognitive. Anemia itself can be cured, but complications that arise can be permanent and irreparable. Therefore, iron supplementation should be done early, before iron deficiency in children becomes Iron Deficiency Anemia[2]. Meeting nutritional and micronutrient needs is very important especially for children for their development and growth. Therefore makes

the author to find out how the effects or effects of malnutrition and iron deficiency can result in anemia in children.

2. MATERIALS AND METHODS

Based on the background, the identification of the problem that will be used as material to review the article, namely the impact of malnutrition that affects iron levels, causes anemia in children. In this Systematic Literature Review the author wants to explain why malnutrition can cause anemia in children and has the following objectives: (a) To find out how much influence malnutrition has on the incidence of anemia in children (b) To find out other factors that can cause anemia. The priority of the problem in the study is the impact of malnutrition that occurs in children in developing countries, one of which is the lack of micronutrient namely iron. The research questions are: (a) How much influence does malnutrition have on the incidence of anemia in children? (b) Are there other factors that cause anemia besides malnutrition? The researcher conducted a literature search strategy using the One Search, Pubmed and Proquest search system with strategies to eliminate literature according to the inclusion criteria. Literature search strategies using the PICO method and making research questions.

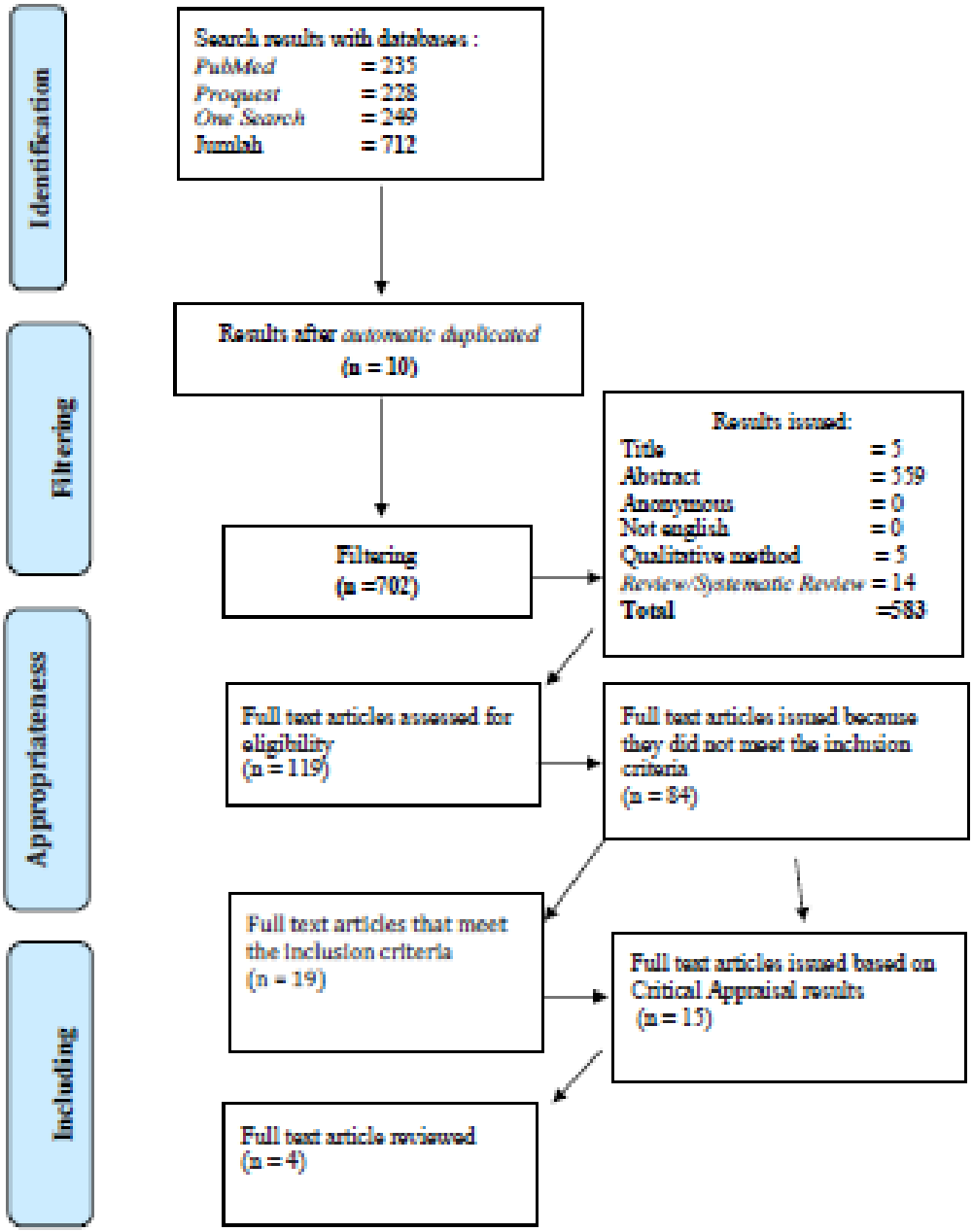
Table 2. Table PICO

Criteria	Inclusion	Exclusion
Patient/Popolation	Child	Species
	Pre school	HIV
Intervention/prognostic factor/Exposure	Malnutrition	Disability
	undernutrition	
	child Nutrition Disorders	
Comparison	-	
Outcome	anemia	
	Anemia, Iron-Deficiency	
Context	ASEAN	
	Indonesia	
	Papua New Guinea	
	Malaysia	
	Laos	
	Cambodia	
	India	
	Timor leste	
	Bangladesh	
	China	
	Thailand	
	Vietnam	
	Brunei Darussalam	
	Philipina	

Table 3. Search Method

Search String	AND	AND	AND
Malnutrition	Anemia	Child	Indonesia
Undernutrition	Anemia, Iron-Deficiency	Prescool	Papua New Guinea
			Malaysia
Child Nutrition Disorders			Laos
			Cambodia
			India
			Timor Leste
			Bangladesh
			China
			Thailand
			Vietnam
			Brunai Darussalam
			Philipina

Bagan 1. Prisma Flow Diagram



3. RESULTS AND DISCUSSIONS

Large influence of Malnutrition on the incidence of anemia in children

a. Journal with the title "Factors Associated with Hemoglobin Concentration among Timor-Leste Children Aged 6-59 Months" [1]. This study provides an explanation of the prevalence and factors associated with hemoglobin (Hb) concentration between children aged 6-59 months in Timor-Leste. The prevalence of anemia (Hb concentration <11.0g / dL) was 38.2% (638 / 1,668) for children aged 6-23 months and 22.6% (644/2846) for children (p <0.001). Girls had higher Hb concentrations than boys (11.9g / dL vs. 11.7g / dL, p <0.006) and children who had diarrhea in the previous two weeks had lower Hb

concentrations than children without diarrhea (11.5g / dL vs. 11.9g / dL, p <0.001). Children from the richest and middle-upper households had lower Hb concentrations compared to the poorest households (11.8g / dL, 11.7g / dL vs. 12.0g / dL, p <0.001). Children from mothers with some secondary education or more have mean lower Hb concentrations than children from mothers with primary education completed, some primary and no education (11.7g / dL vs. 11.9 g / dL, 11, 8 g / dL, and 11.9 g / dL, p = 0.002). Children of mothers with severe anemia had lower Hb concentrations than children of anemic mothers rinngan and mothers not anemic (10.5 g / dL vs. 11.1 g / dL, 11.6 g / dL, 12.0 g / dL.

b. Journal with the title "Anemia in severe acute malnutrition" (Thakur, Chandra, Pemde, & Singh, 2014). This study provides an explanation of the percentage of acute pariah malnutrition (SAM) that causes anemia in India. Included in this study were 131 SAM cases. Age groups vary between 6 and 59 months. Of patients with SAM, 67.3% had severe anemia; 13.8% had moderate anemia. Of these patients, 25% were needed in red blood cell transfusions. The most common type of anemia is microcytic (38.6%) followed by megaloblastic (30.5%).
c. Journal with the title "Infant and young child feeding practices in urban Philippines and their associations with stunting, anemia, and deficiencies of iron and vitamin A", researcher Fabian Rohner, Bradley A. Woodruff, Grant J. Aaron, Elizabeth A. Yakes, May Antonnette O. Lebanan, Pura Rayco-Solon, and Ofelia P. Saniel. This study provides an explanation of the influence of anemia on children and other factors that influence anemia in addition to malnutrition. Among children from urban areas and most of the poor and very poor households, 26% were obstructed, 18% were underweight, and 5% were wasted. Forty-two percent are anemic, 28% are deficient in iron, and 3% are deficient in vitamin A. About half of children are breastfed within one hour after birth, breastfed during the survey, and continue to be breastfed until the age of 1 year. Of the factors investigated, low socioeconomic status, cheaper use of cooking fuel, and not using multivitamins are all independently related to stunting. The prevalence of anemia, iron deficiency and vitamin A deficiency are independently associated with the same factors and poorer sanitation facilities, lower maternal education, current unemployment, and inflammation.
d. The journal entitled "The Influence of Malnutrition and Micronutrient Status on Anemic Risk in Children under 3 Years Old in Poor Areas in China (Wang et al., 2015)". This study provides an explanation of the effects of malnutrition in children on the effects of anemia. With the results obtained: Among children aged 0 - 35 months, the prevalence of stunting, low weight and discarding was 17.5%, 8.6% and 5.1%, respectively, and 25.6 % of children were affected by anemia, with more anemic infants and younger children than older children (P <0.01). There were 26.5%, 12.8%, 14.1% and 20.0% of children 12-35 months old affected by iron deficiency, lack of vitamin D, lack of folic acid and vitamin B 12 deficiency of each . For children aged 0-11 months who were breastfed, the status of maternal anemia was the only factor associated with anemia that occurred in children (OR = 2.6; 95% CI: 1.2 - 5.4, P <0.05). For children 12 - 35 months of age, multivariate logistic regression showed that anemia was significantly associated with iron and vitamin B 12 deficiencies (OR = 5.3; 95% CI: 1.9-14.5, P <0.01) and diet monotonous (OR = 2.3; 95% CI: 1.1 - 4.7, P <0.05) after adjusting for age and sex.

4. CONCLUSION

Malnutrition is one of the causes of anemia in children in developing countries in ASIA, and is also influenced by other factors, such as:

a. Household socio-economic status, type of fuel used in the household, and sanitation facilities
b. Mother's Education Level
c. Age of younger children, number of siblings and fever
d. ASI and IMD
e. Gender
f. Diarrhea in 2 weeks
g. Status of anemia in nursing mothers

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