THE RELATIONSHIP OF ENERGY AND IRON INTAKE WITH NUTRITIONAL STATUS OF TEENAGE GIRLS

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ABSTRACT

Nutritional problems in teenager have serious implications for the health of young people, impacting the well-being of current and future generations. Teenager require a greater intake of nutrients than when they were children, but teenagers tend to adopt wrong consumption patterns, namely the nutrients they consume are not in accordance with their needs. The aim of the research was to determine the relationship between energy and iron intake and nutritional status in teenagers girls at SMP Negeri 1 Galang. This research was conducted at SMP Negeri 1 Galang with a sample of 128 people. The research is descriptive observational with a cross sectional design. Intake data by recall interview 24 hours later nutritional status data by weighing and measuring height. Research results The energy intake of adolescent girls at SMP Negeri 1 Galang is mostly deficit (82.81%). Iron intake was almost entirely (98.44%) deficit. The nutritional status of the majority (71.9%) was good nutrition. Furthermore, there is a significant relationship between energy intake and nutritional status in teenager girls with a p-value of 0.001 and there is no significant relationship between iron intake and nutritional status with a p-value of 0.812.

Keywords: *Energy Intake, Iron Intake, Nutritional Status, Teenage girls*

INTRODUCTION

Indonesian teenagers bear three burdens of malnutrition, namely malnutrition, excess body weight and micronutrient deficiencies (Unicef, 2020). Nutritional problems in teenager have serious implications for the health of young people, will impact the welfare of current and future generations, as well as the economy and health of the country. In particular, the nutritional status of adolescent girls is closely related to pregnancy outcomes and the health and survival of mothers and children (Unicef, 2021).

Teenager are a nutritionally vulnerable age group due to their rapid increase in physical growth and development. Teenager require a greater intake of nutrients than during childhood, but teenager tend to adopt incorrect consumption patterns, namely the nutrients consumed are not in accordance with their needs (Widnatusifah et al., 2020).

Adolescent girls often experience problems with their nutritional status because it is influenced by several factors such as implementing bad eating habits without knowing the nutrients contained in the food they consume as well as a wrong understanding of nutrition which is triggered by the desire of teenagers to have a slim body, resulting in the need for nutrition. cannot be fulfilled properly. Current assessments of young women tend to want a proportional physical appearance or body image, such as the feeling of having a fat or abnormal body shape but the evidence is that they have a thin body and vice versa (Insani, 2022).

Nutritional status is directly influenced by two things, namely the adequacy of nutritional intake to meet the body's needs and a person's infection status (Lastawati, 2017). Teenager' consumption patterns are generally less varied and in small quantities and consumed incompletely at each meal, causing energy intake from carbohydrate, protein and fat sources to be very less compared to the recommended nutritional adequacy for these teenager (Mega Insani, 2019).

Energy is the result of carbohydrate, fat and protein metabolism. The energy function is a source of energy for metabolism, regulation of body temperature, growth and physical activity. Lack of energy intake if it lasts for a long period of time will result in weight loss and a lack of other nutrients. Malnutrition will result in obstacles to the child's growth and development process (Khairani et al., 2021).

Iron is the most abundant micro mineral found in the human body. Sexual maturation in adolescent girls causes iron requirements to increase. Iron deficiency can reduce immune function, if this occurs over a long period of time it will result in resistance to infectious diseases which will affect nutritional status (Putri et al., 2022).

Based on the 2018 North Sumatra Basic Health Research (Riskesdas), the prevalence of teenager aged 13-15 years with nutritional status (BMI/U) in the thin category was 5.70%, the obesity category was 4.80%. Meanwhile, the prevalence of teenager aged 13-15 years in Deli Serdang Regency with nutritional status (BMI/U) in the underweight category is 7.36%, which is above the provincial figure, namely 5.70%, and the obesity category is 5.06%, which is where This prevalence is above the provincial figure, namely 4.80% (Riskesdas North Sumatra, 2018).

Based on a preliminary survey conducted on 10 samples of teenage girls at SMP Negeri 1 Galang, the results showed that the nutritional status of teenage girls at SMP Negeri 1 Galang was good, namely 100%. To be able to provide an overview of the variables used, the researchers wanted to examine in more depth the food intake consumed by these young women.

RESEARCH PURPOSES

The aim of this research is to determine the relationship between energy and iron intake and nutritional status in teenager girls at SMP Negeri 1 Galang.

METHOD

This research is observational with a cross-sectional design. The research location is SMP Negeri 1 Galang.

The independent variables studied were energy intake and iron intake, while the dependent variable studied was the nutritional status of young women. The population in this study was 150 people and the sample was 128 people.

Intake data was collected directly through 24-hour food recall interviews for 3 (three) non-consecutive days. Data on nutritional status is carried out by measuring body height (TB) with a stadiometer and weighing body weight with a digital scale.

RESULTS

The results of the univariate analysis showed that generally (68.0%) young women at SMP Negeri 1 Galang had good nutritional status (Table 1).

Table 1 Sample Distribution based on Nutritional Status

No	Nutritional Status	n	%
1	Malnutrition (-3SD until <-2SD)	6	4,7
2	Obesitas (>2SD)	10	7,8
3	More nutrition (>1 SD until 2 SD)	25	19,5
4	Good Nutrition (-2SD until 1 SD)	87	68,0
	Total	128	100

In general (82.3%) the energy intake of teenager girls at SMP Negeri 1 Galang is still in deficit (Table 2).

Table 2 Sample Distribution by Energy Intake

No	Energy intake category	n	%
1	Defisit (<70% AKG)	106	82,8
2	Not enough (70-79% AKG)	12	9,4
3	Currently (80-99%AKG)	10	7,8
	Total	128	100

In general (98.4%) the iron intake of adolescent girls at SMP Negeri 1 Galang is still in deficit (Table 3)

Table 3 Sample Distribution based on Iron Intake

No	Iron category	n	%
1	Deficyt (<70% AKG)	126	98,4
2	Not enough (70-79% AKG)	2	1,6
	Total	128	100

The results of the bivariate analysis, on energy intake and nutritional status, show that the p-value is 0.001, p-value <0.05, so there is a significant relationship between energy intake and nutritional status in young women at SMP Negeri 1 Galang (Table 4).

Tabel 4 Relationship between Energy Intake and Nutritional Status

Energy intake category	Nutritional status								Total		*Value*
	Not enough		Obesitas		More		Good				
	n	%	n	%	n	%	n	%	n	%	
Deficit (<70% AKG)	2	1,6	9	7,0	24	18,8	71	55,5	106	82,8	0,001
Not enough (70-79% AKG)	0	0	1	0,8	1	0,8	10	7,8	12	9,4	
Curremtly (80-99% AKG)	4	3,1	0	0	0	0	6	4,7	10	7,8	

Furthermore, iron intake and nutritional status show that the p-value is 0.812, p-value > 0.05, so there is no significant relationship between iron intake and nutritional status in young women at SMP Negeri 1 Galang (Table 5).

Table 5. Relationship between Iron Intake and Nutritional Status

Iron Intake Category	Status Gizi								Total		*Value*
	Not enough		Obesitas		More		Good				
	(Ctrl)		n	%	n	%	n	%	n	%	
Deficit (<70% AKG)	6	4,7	10	7,8	25	19,5	85	66,4	126	98,4	0,812
Not enough (70-79% AKG)	0	0	0	0	0	0	2	1,6	2	1,6	

DISCUSSION

Energy Intake with Nutritional Status

According to Parewasi et al., (2021) a lack of energy intake will cause malnutrition, but table 4 shows that of all samples with a deficit in energy intake (n=71), the majority (55.5%) had good nutritional status. The results of interviews with respondents stated that this was caused by the number of portions the respondents ate, which was infrequent, not varied, and influenced by physical activity. Apart from that, the energy released is not balanced with intake. It can be seen from the recall results that samples consumed for 3 non-consecutive days, where the majority of samples often consumed junk food such as fried meatballs, fried foods, instant noodles, colored drinks, and rarely consumed fruit. Most respondents did not have breakfast when going to school because they were running out of time and there was no food available at home, so they only consumed food available in the school canteen during break time.

Respondents with over-nutritional status and obesity experienced energy deficits assumed to be due to hereditary factors, delayed meal times because they were not hungry and lacked physical activity, where they spent all day playing on cellphones.

Iron Intake with Nutritional Status

Based on the results of interviews with respondents, it shows that the number of portions the respondents eat is small, the frequency is rare and not varied and there is a lack of understanding about the importance of iron, and students also do not know what food sources of iron are.

The results of the analysis are in line with research by Apriliana et al., (2023) conducted on young women in the Bandarharjo sub-district area, North Semarang, which found that 91.9%

of respondents' iron adequacy levels were in the deficient category. In this study, it was assumed that the frequency, amount and type of food consumed by respondents was less varied, so that the level of iron adequacy was less. Apart from the lack of variation in the amount and type of food, most of the respondents in this study also often consumed substances that inhibit iron absorption such as tea, chocolate and coffee.

CONCLUSIONS AND RECOMMENDATIONS

The research results show that the energy intake of adolescent girls at SMP Negeri 1 Galang is mostly deficit (82.81%). Iron intake was almost entirely (98.44%) deficit. The nutritional status of the majority (71.9%) was good nutrition. Furthermore, there is a significant relationship between energy intake and nutritional status in adolescent girls with a p-value of 0.001 and there is no significant relationship between iron intake and nutritional status with a p-value of 0.812.

The results of the research suggest that it is necessary to conduct outreach to increase knowledge about energy, iron and sources of energy, iron and the benefits that can influence the growth and development process. Furthermore, it is necessary to increase energy and iron intake for young women whose intake is deficit and insufficient so that they can meet the numbers. nutritional adequacy as recommended and the need to increase physical activity for young women whose nutritional status is over-nourished and obese so that they can achieve good nutritional status.

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