

Determinant Factors of Nutritional Status In Adolescents

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ABSTRACT

Background: The nutritional status of adolescents in Gorontalo Province is based on data. The prevalence of overweight and obesity in the 13-15 year age group is 16%. The prevalence rate of overweight and obesity in the 16-18 year age group reached 12.4%. The results of the Gorontalo Province Riskesdas in 2018 showed that physical activity in the low category was high, namely 34.0% and obesity based on BMI in the adult group was 24.4% (Kemenkes RI, 2018). By knowing the facts above, further research will be carried out regarding the determinants of nutritional status in adolescents in Gorontalo.

Purpose: The aim of this research is to determine the determinants of nutritional status in adolescents in Gorontalo City.

Methods: The type of research used is Analytical Observational with Cross sectional approach. The population in this study were adolescents in Gorontalo City. In the study, the sampling technique was Accidental Sampling with a sample of 206 respondents. This research was conducted from January to May 2023. The instrument used in this study was a questionnaire distributed to 206 respondents as a sample.

Conclusion: The results of this research are that there is a relationship between food intake (carbohydrate intake, protein intake and fat intake with the incidence of nutritional status. There is no relationship between stress levels and physical activity and the incidence of nutritional status. Suggestions provide education to teenagers about the importance of nutritional status.

Keywords: *Adolescents, nutritional status, dietary intake, stress, physical activity* ©2022
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BACKGROUND

Nutritional status is a condition resulting from the balance status between the amount of intake of nutrients such as physical growth, development, activity, health maintenance, and others (Asmarani, A., Sudayasa, I. P., & Dewi, 2019). The problem of nutrition is a public health problem that has not been resolved globally, its impact is extraordinary not only on morbidity, disability and death but also on the formation of quality human resources. Several developing countries face a double nutritional problem of undernutrition and overnutrition. Based on WHO data in 2018, more than 1.9 billion adults are overweight. Nutritional status in Indonesia has not shown encouraging

improvements over the last five years. Based on the results of nutritional status monitoring (PSG) in 2017, the nutritional status of the adult population aged > 18 years based on BMI in Indonesia is thin at 5.0%, normal at 54.6%, fat at 14.6% and obese at 25.8%. The nutritional status of the adult population aged > 18 years based on BMI in Gorontalo Province is 4.1% thin, 54.8% normal, 15.2% fat and 25.9% obese (Ministry of Health, 2017).

The nutritional needs for teenagers are very large because they are still growing. Reamaj needs energy, calories, protein, calcium, iron, zinc and vitamins to fulfill physical activities such as daily activities. Every teenager wants a healthy body condition so they can fulfill physical activities (Hamzah & Hafid, 2020).

A person's nutritional condition is not only influenced by consumption patterns. A person's nutritional condition can also be influenced by physical activity. Weight gain can be caused by more energy intake and not balanced with sufficient physical activity. Changes in adolescent eating patterns refer to nutritional problems resulting from diets high in calories, cholesterol and fat and not balanced with good physical activity (F. Ramadhani, et al, 2022).

Stress levels in teenagers can be caused by many factors, including type A behavior experiencing stress more quickly than those with type B. Stress can ultimately cause coronary heart disease (CHD). Stress can take the form of changes in life events that occur, both in the school environment, place of residence, and society (F. Ramadhani, et al., 2021).

When someone experiences stress, stress can disrupt the balance of the sufferer's body. Therefore, the body will respond to stress and restore its balance by producing physiological responses. Stress is also a person's physical and emotional response when there is a change in the environment that requires a person to adapt (F. Ramadhani., et al, 2021).

Food intake is an important habit that can influence nutritional conditions and fulfill balanced nutritional needs. Adolescence is a nutritionally vulnerable age because growth and development is rapid and sufficient energy is needed to carry out various physical activities. If food intake is poor, it will result in suboptimal growth and development, and they will be more susceptible to chronic diseases in adulthood. Data from the Gorontalo Provincial Health Service in 2021 revealed that only 50% of nutritional status in Gorontalo City had normal nutritional status. The rest have abnormal nutritional status, including thinness and obesity.

OBJECTIVE

This study aims to examine the relationship between food intake, physical activity and stress levels with nutritional status.

METHODS

This study used a questionnaire containing questions about physical activity and stress levels. While food intake was measured by doing a 24-hour recall. This research is an observational analytic design with a cross sectional study approach. This research was conducted in Gorontalo City. This research was conducted from January to May 2023. The population in this study were adolescents in Gorontalo city. In the study, the sampling technique was Accidental Sampling with a total sample of 206 respondents.

RESULTS

Table 1. Distribution of Respondents

variabel	Carakteristics	
	N	%
Gender		
Male	115	55.8
Female	91	44.2
Age		
15-16	84	40.7
17-19	122	59.3
Nutritional Status		
Normal	161	78.2
Abnormal	45	21.8
Intake Kategori		
Carbohidrat		
More	33	16
Enough	17	8.3
Less	156	17.5
Protein		
More	36	17.5
Enough	23	11.2
Less	147	71.4
Fat		
More	11	5.3
Enough	20	9.7
Less	175	85
Stress Level		
Mild	196	95.1
Moderate	10	4.9
Physical Activity		
Mild	100	48.5
Moderate	106	51.5

Primer 2023

Table 2. Analysis of the Relationship between Carbohydrate, Protein, Fat, Stress Level and Physical Activity Intake

Variabel	Nutritional Status				Total	P value	
	Normal		Abnormal				
	n	%	n	%			
Carbohidrat Intake							
More	29	87.9	4	12.1	33	100	0.000
Enough	7	41.2	10	58.8	17	100	
Less	125	80.1	31	19.9	156	100	
Protein Intake							
More	31	86.1	5	13.9	36	100	0.004
Enough	12	52.2	11	47.8	23	100	
Less	118	80.3	29	19.7	147	100	
Fat Intake							

More	8	72.7	3	27.3	11	100	
Enough	10	50	20	50	20	100	0.005
Less	143	81.3	32	18.3	175	100	
Stress Level							
Mild	154	78.6	42	21.4	196	100	0.378
Moderate	7	70	3	30	10	100	
Physical Activity							
Mild	79	79	21	21	100	100	0.907
Moderate	82	77.4	24	22.6	106	100	

Primer 2023

DISCUSSION

In this study, data on energy intake, protein intake, fat intake and carbohydrate intake were obtained using a 2x24 hour recall questionnaire method. The recall method is used to measure individual food habits so that there is an overview of a person's eating patterns. Energy intake is said to be adequate if the RDA is 80-120% and said to be insufficient if the RDA is <80%.

Carbohydrates play an important role in food because they are the main source of energy. The products produced are mainly in the form of simple sugars that are easily soluble in water and easily transported to all cells to provide energy (Setiyaningrum, 2021).

Carbohydrates are the main source of energy for the world's population, especially residents of developing countries. Carbohydrates have an important role in determining the characteristics of food ingredients, such as taste, texture and color. In the human body it can be formed from several amino acids and some fat glycerol. Most of the food ingredients come from plants (Tutik Hidayati, dan Iis Hanifah, 2019).

Based on data analysis, it shows that there is a significant relationship between carbohydrate intake and nutritional status. This research is in line with research conducted by Loaloka MS, Zogara AU, (2023) which states that there is a relationship between carbohydrate intake and nutritional status. However, this is in contrast to the research results of (D. R Parewasi, et al, 2021) that there is no relationship between carbohydrate intake and nutritional status. Carbohydrates are a source of energy for the body that is easy to obtain at an affordable price. Carbohydrates consumed by the body must be in normal condition because if more or less carbohydrates are consumed it can affect the metabolic system in the body (D. R Parewasi, et al, 2021)

Protein is a very important macro mineral, and protein functions to maintain, repair, replace damaged tissue, and as an energy reserve when the body lacks fat and carbohydrates. Protein that is not used will be converted into fat and stored as fat reserves (Septiawati et al., 2021). Protein is important for the body, because protein forms body cells and is a substance that builds body tissue. Lack of protein intake in adolescents can inhibit the growth of the adolescent's body (Supariasa, Bakri B, 2012). If there is a lack of protein, it can inhibit the growth and development of body tissue, cause mental and physical damage, and even lack red blood cells. Meanwhile, excess protein can cause kidney and liver problems (Supariasa, Bakri B, 2012). Protein is used in the formation and repair of body cells and tissues, including neurotransmitters. Neurotransmitters are chemical messengers that carry information from brain cells to other brain cells. Protein

is found in foods such as meat, fish, milk and cheese. Lack of protein, also known as Lack of Protein Energy. This causes children's learning achievement at school to be poor and causes children to become lethargic, weak, and lack concentration, which can affect social and emotional development (Supariasa, Bakri B, 2012). Based on data analysis, there is a relationship between protein intake and nutritional status. This research is in line with research conducted by (Uramako, D., 2021) which states that there is a relationship between protein intake and the nutritional status of MA Darul Qur'an students in 2021. Insufficient protein intake along with prolonged lack of energy can cause malnutrition. The risk factor for malnutrition can be caused by low consumption of food sources of protein. Consuming food that does not meet needs is one of the factors that influences growth and nutritional status. Excessive protein consumption along with excess energy sources can improve nutritional status, and vice versa (Uramako, D., 2021). Adolescents need to make efforts to maintain nutritional status so that it is always in optimal condition, namely by adhering to balanced nutrition, where consuming food according to each individual's portion and avoiding imbalances between nutrients. Normal nutritional status will be achieved if protein consumption is met according to the body's needs, but it must be balanced with intake of other nutrients. This is appropriate because protein is one of the macronutrients which functions as a builder, maintainer and body tissue and helps in metabolism. If protein consumption is high, it will be stored as fat tissue, which can increase muscle mass, causing body weight to increase and nutritional status to become abnormal.

Based on data analysis, there is a relationship between fat intake and nutritional status. This research is in line with research by (Rahmita Yanti dan Maria Nova, 2021) that there is a relationship between fat intake and nutritional status. However, this is not in line with research conducted by (J. K. Rani, dan E. Syainah, 2021), which found that there was no relationship between fat intake and nutritional status.

Based on data analysis, there is no relationship between stress levels and nutritional status (F. Ramadhani., et l, 2021). In a stressful situation, a person tends to forget to fulfill basic needs, such as the need for food, personal hygiene and rest. The results of this analysis are in contrast to research conducted by (Miliandani & Meilita, 2021) which stated that there is a relationship between stress and nutritional status. If food intake is low and lasts for a relatively long period of time, a person will experience nutritional deficiencies which will result in a decrease in nutritional status (Miliandani & Meilita, 2021). Stress can occur in any environment, including school, work and family. Anyone including children, teenagers, adults and the elderly can experience stress (Miliandani & Meilita, 2021). Based on data analysis, there is no relationship between physical activity and nutritional status. This research is in line with research conducted by (F. Ramadhani., et al, 2021). However, the results of the research are in contrast to research conducted by (R. Yanti dan M. Nova, 2021) which found that the results of physical activity were related to nutritional status. Physical activity is a factor important in maintaining a person's nutritional status in the normal category. Globally 81% of adolescents aged 11-17 years have physical activity in the low category (J. K. Rani, E. Syainah, 2021).

CONCLUSION

There is a relationship between carbohydrate intake, protein intake and fat intake with nutritional status adolescents. There is no relationship between stress levels and physical activity and nutritional status adolescents.

REFERENCE

- Asmarani, A., Sudayasa, I. P., & Dewi, A. R. (2019). Pengaruh Pola Makan terhadap Status Gizi Narapidana Lapas Kelas II A Baubau. *MEDULA*, 6(1).
- D. R Parewasi, R., & Indriasari, H. Hidayanty, V. Hadju, S. M. B. (2021). JHUBUNGAN ASUPAN ENERGI DAN ZAT GIZI MAKRO DENGAN STATUS GIZI REMAJA PUTRI PESANTREN DARUL AMAN GOMBARA CORRELATION OF ENERGI INTAKE AND MACRO NUTRIENT WITH NUTRITIONAL STATUS OF ADOLESCENT PESANTREN DARUL AMAN GOMBARA. *GMI: The Journal of Indonesian Community Nutrition*, 10(1).
- F. Ramadhani, H. Hatta., Nuryani., Maesarah., D. Adam., S. Sillehu., H. S. W. N. (2022). Correlation of Energy, Protein, Carbohydrate, and Physical Activity Intake with Nutritional Status of Adolescents. *Open Access Macedonian Journal of Medical Sciences.*, 10(E), 1440–1445.
- F. Ramadhani ., H. Hatta., Nuryani., N. Yusuf., S. (2021). Relationship Between Nutrion Intake, Family Income and Stress Levels With Obesity In Adolecents. *JURNAL KESMAS UWIGAMA.*, 7(2).
- Hamzah, H. dan, & Hafid, A. (2020). Pengaruh Pola Makan Terhadap Status Gizi Anak Sekolah Dasar',. *Jurnal Keperawatan Muhammadiyah*, 5(2)., 5(2).
- J. K. Rani, E. Syainah, S. M. (2021). Hubungan Aktifitas Fisik, Asupan Lemak Dan Karbohidrat Terhadap Status Gizi Mahasiswa Gizi Poltekkes Banjarmasin. *JURNAL Riset PANGAN DAN GIZI*, 3(2).
- Kemendes RI. (2018). *HASIL RISKESDAS 2018*. Badan Penelitian dan Pengembangan Kesehatan.
- Loaloka MS, Zogara AU, D. S. (2023). Hubungan Asupan Zat Gizi Makro Dan Aktivitas Fisik Dengan Status Gizi Mahasiswa. *Jurnal Mahasiswa Dan Peneliti Kesehatan (Jumantik).*, 10(1), 63–70. <https://doi.org/https://doi.org/10.29406/jjum.v10i1.529163>
- Miliandani, D., & Meilita, Z. (2021). Hubungan Antara Tingkat Stres Dengan Status Gizi Mahasiswa Tingkat Akhir Di Fakultas Ilmu Kesehatan Universitas Islam As-Syafi'iyah Jakarta Timur Tahun 2021. *Jurnal Alfiat Kesehatan Dan Anak*, 7(1), 31–43. <https://uia.e-journal.id/afiat/article/view/2142>
- Rahmita Yanti, Maria Nova, A. R. (2021). Asupan Energi, Asupan Lemak, Aktivitas Fisik Dan Pengetahuan, Berhubungan dengan Gizi Lebih pada Remaja SMA. *Jurnal Kesehatan Perintis*, 8(1), 45–53.
- Ramadhani F, Badu F.D, Djafar L, H. S. P. D. T. (2021). Correlation Of Physical Activity, Family Income And Consumption Of Fruits And Vegetables With The Incidence Of Obesity In Adolescents . *Kinestetik : Jurnal Ilmiah Pendidikan Jasmani*, 5(2).
- Septiawati, D., Indriani, Y., & Zuraida, R. (2021). Tingkat Konsumsi Energi dan Protein dengan Status Gizi Balita. *Jurnal Ilmiah Kesehatan Sandi Husada*, 10(2), 598–604. <https://doi.org/10.35816/jiskh.v10i2.660>
- Setiyaningrum, Z. (2021). Asupan Zat Gizi dan Status Gizi Remaja Putri di Pondok Pesantren Firdaus. *Jurnal Ilmiah Gizi Dan Kesehatan (JIGK)*, 3(01), 1–8.



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<https://doi.org/10.46772/jigk.v3i01.559>

Supariasa, Bakri B, F. I. (2012). *Penilaian Status Gizi*. EGC.

Tutik Hidayati, Iis Hanifah, Y. N. E. S. (2019). *PENDAMPING GIZI*. Deepublish Publisher.

Uramako, D., F. (2021). Faktor Determinan yang Berpengaruh Terhadap Status Gizi Remaja. *Jurnal Ilmiah Kesehatan Sandi Husada*, 10(2).
<https://doi.org/10.35816/jiskh.v10i2.651>