

Factors Associated with the Incidence of Overweight in Junior High School Students

Pipit Tri Achmadi¹, Diah Yulistika Handayani²

^{1,2}Faculty of Health Sciences, Universitas Muhammadiyah Purwokerto, Indonesia

ARTICLE INFO

Article history:

DOI:

[10.30595/pshms.v5i.986](https://doi.org/10.30595/pshms.v5i.986)

Submitted:

Oct 13, 2023

Accepted:

Feb 25, 2024

Published:

Mar 20, 2024

Keywords:

Overweight, Junior High Schools Students

ABSTRACT

Background: According to the 2018 Riskesdas data, 1 out of 7 Indonesian adolescents is overweight which leads to obesity. The obesity rate in children aged 5-12 years is also high, namely 9.2%, 13-15 years 4.8% and 16-18 years 4%. Obesity can be caused by several factors, including external factors (socioeconomic level, nutritional knowledge, culture) internal factors (consumption patterns, physical activity, psychological factors). Method: This study is an analytical observational type with a quantitative-qualitative research approach. The study sample consisted of 66 students selected using simple random sampling. Respondent data were collected through interviews using a semi-FFQ form for dietary habits and anthropometric measurements for nutritional status. Results: In this study, it was found that 31 (47%) had a fairly good diet and 35 (53%) students had a diet > 3 times a day. As many 44 (66.7%) students often do light physical activity, while 22 students (33.3%) with moderate activity 51 students (77.3%) have parents with more income and 15 (22.7%) students have sufficient pocket money A total of 36 and 30 (54.5% vs 45.5%) students respectively had good and bad nutrition knowledge. Conclusion: The occurrence of overweight among junior high school students is closely related to dietary patterns, nutritional knowledge, and weight status.

This work is licensed under a [Creative Commons Attribution 4.0 International License](https://creativecommons.org/licenses/by/4.0/).



Corresponding Author:

Diah Yulistika Handayani

Faculty of Health Sciences, Universitas Muhammadiyah Purwokerto,

Soepardjo Rustam Street KM. 7, Banyumas, Indonesia

Email: diyahyulistikahandayani@ump.ac.id

1. INTRODUCTION

Non-communicable diseases are currently the biggest cause of death and disability in Indonesia. 80% of NCDs are caused by unhealthy lifestyles as a result of modernization such as lack of physical activity, lack of consumption of vegetables and fruits, foods high in sugar, salt and fat, smoking and alcoholic beverages, so most NCDs are actually preventable [1]. Unhealthy lifestyles, also known as behavioral risk factors for NCDs, have an impact on health, one of which is obesity. Obesity is an entry point for risk factors/non-communicable diseases such as heart disease, stroke, diabetes, and cancer. Obesity in childhood can increase the incidence of type 2 diabetes mellitus (DM) obesity in children aged 6-7 years can also reduce the level of intelligence because children's activity and creativity decrease and tend to be lazy due to excess weight. The obesity rate in children aged 5-12 years is also high at 9.2 percent, 13-15 years 4.8 percent, and 16-18 years 4 percent. Riskesda 2018 data states that 96 percent of children aged 10-19 years consume less fruits and vegetables and 64 percent of Indonesian children lack physical activity. This condition is one of the causes of nutritional problems in children and increases the high obesity rate in childhood [2].

Overweight and obesity can occur in all age groups, including adolescents, because this group is in a phase of rapid and rapid growth (growth spurt) so that it requires relatively larger amounts of nutrients. Overweight in adolescents is characterized by relatively excessive body weight when compared to the age and height of adolescents of the same age, as a result of excessive fat accumulation in the body's fat tissue[3]. Overweight can be caused by several factors, including external factors (socioeconomic level, nutritional knowledge, culture), internal factors (consumption patterns, physical activity, psychological factors)[4].

Based on the description above, it can be seen that there is a gap between the results of previous studies. For this reason, researchers interested in conducting research with the title "factors associated with the incidence of overweight in junior high school students".

2. RESEARCH METHOD

This research design used an analytic observational approach using a quantitative-qualitative study that aims to determine the factors associated with the incidence of overweight in students at JHS Negeri 4 Banjar. The research was conducted by means of an approach, collecting data at the same time taken at the same time with independent variables (physical activity, dietary intake (energy, protein, fat, carbohydrates) and nutritional knowledge) and the dependent variable (incidence of overweight)[5]. This research was conducted in the even semester of the 2022/2023 school year precisely in May-June at JHS N 4 Banjar, this school was chosen because it has enough students and students who can support the smooth running of this research.

Population is the entire source of data needed in a study. The population of this study were students and students of JHS Negeri 4 Banjar in 2022, all classes VII-IX, totaling 192 students. This study used 66 respondents as a sample consisting of 10 grade VII students, 30 grade VIII students, and 26 grade IX students. By using the Samoel retrieval technique, namely simple random sampling which is randomly selected. The primary data collection technique is collected by interviewing students of JHS N 4 Banjar using a research interview technique which includes the identity of the respondent, the interview uses a semi ffq form. Secondary data on the number of students obtained from JHS N 4 Banjar in the form of name date of birth and class. Data analysis is using univariate and bivariate analysis. Univariate analysis in this study was used to determine food intake (energy, protein, fat, carbohydrates) and nutritional knowledge (independent variables) with the incidence of overweight (dependent variable). Bivariate analysis aims to determine the relationship between dietary variables (energy, protein, fat, carbohydrates) and nutritional knowledge (independent variables) with the incidence of overweight (dependent variable) together using Chi Square analysis[6].

3. RESULT AND DISCUSSIONS

3.1. Univariat

Table 1. Respondent Characteristic

Responden Characteristic	Frequency	Presentage
Gender		
Male	34	51.5
Female	32	48.5
Total	66	100

Based on table 1 above, the univariate test results show that the research sample consists of 66 junior high school students. Of these, 34 students (51.5%) were male, and 32 students (48.5%) were female.

Table 2. Diet

Diet		
frequency	n	%
simply	31	47
more	35	53
Total	66	100

Based on table 2 above, the univariate test results show that the study sample consists of 66 junior high school students. Of these, 31 students (47%) have an adequate diet, and 35 students (53%) have a diet that is more. These results provide information about the incidence of overweight in junior high school students. Unhealthy diet can cause the body to become overweight, so the importance of maintaining a good and balanced diet is very important to help maintain the immune system to prevent overweight.

Table 3. Physical Activity

Physical activity		
frequency	n	%
simply	44	66.7
Medium	22	33.3
Total	66	100

Based on table 3 above that the study sample consists of 66 junior high school students. Of these, 44 students (66.7%) had mild physical activity, and 22 students (33.3%) had moderate physical activity. Light physical activity requires little exertion and usually does not cause changes in breathing, leisurely walking at home, playing gadgets etc. moderate physical activity the body sweats slightly, heart rate and body frequency become faster.

Table 4. Revenue

Revenue		
frequency	n	%
simply	15	22.7
more	51	77.3
Total	66	100

Based on table 4 above, test results show that the research sample consists of 66 junior high school students. Of these, 15 students (22.7%) had sufficient income, and 51 students (77.3%) had more income. Pocket money is a common thing given by parents to their children, giving enough pocket money is better so that the control of food intake in students is not excessive, otherwise giving excessive pocket money to students will be difficult to control food intake and the child becomes dependent, this behavior has a relationship with overweight because the child is free to snack anywhere.

Table 5. Nutrition knowledge

Nutrition Knowledge		
frequency	n	%
Not good	36	54.5
Good	30	45.5
Total	66	100

Based on Table 5 above, of these, 36 students (54.5%) had less knowledge about nutrition, and 30 students (45.5%) had more nutritional knowledge. Nutritional knowledge is knowledge related to food and nutrients, sources of nutrients in food, safe food for consumption so as not to cause disease, children's nutritional status can be influenced by two things, namely less and excess food intake. This of course has a relationship with overweight in students because of the lack of nutritional knowledge in these students, students are more indecent in buying the desired snacks so that eating patterns are not regular.

Table 6. Incidence of overweight

Overweight		
frequency	n	%
More >1SD	37	56.1
Normal	29	43.9
Total	66	100

Based on table 6, Of these, 37 students (56.1%) had more than normal weight, and 29 students (43.9%) had normal weight.

3.2 Bivariat

Table 7. Relationship between diet and overweight

Diet	Overweight				n	%	p
	Normal		more				
	n	%	n	%			
simply	19	61.3	12	38.7	31	100	
more	5	14.2	30	85.8	35	100	
Total	24	36.3	42	63.6	66	100	0.041

Sig value is known. (P-value) of 0.041 < 0.05, it is concluded that there is a significant relationship between diet and overweight in students. Diet has a significant relationship with the incidence of overweight. Frequency of eating is the number of meals in a day, the results of the study obtained the prevalence of frequency of eating more than 3 times a day is greater than the prevalence of eating 2 times a day. This can affect the amount of food intake that enters the body, causing fat accumulation and increasing the risk of overweight.

Table 8. Relationship between physical activity and overweight

Physical activity	Overweight				n	%	p
	Normal		More				
	n	%	n	%			
Lightweight	15	34.1	29	65.9	44	100	
Medium	12	54.5	10	45.5	22	100	0.035
Total	27	40.9	39	59.1	66	100	

Sig value is known. (P-value) of 0.035 < 0.05, it is concluded that there is a significant relationship between physical activity and overweight in students. The relationship between physical activity and the incidence of overweight is related to the imbalance of incoming and outgoing energy expenditure. The remaining energy in the body due to low physical activity will turn into body fat which is then associated with overweight.

The relationship between physical activity and the incidence of overweight is related to the imbalance of incoming and outgoing energy expenditure. The remaining energy in the body due to low physical activity will turn into body fat which is then associated with overweight.

Table 9. Relationship between income and overweight

Income	Overweight				n	%	p
	Normal		More				
	n	%	n	%			
Simply	8	53.3	7	46.7	15	100	
More	18	35.3	33	64.7	51	100	0.014
Total	26	29.3	40	60.7	66	100	

Sig. (P-value) of 0.014 < 0.05, it is concluded that there is a significant relationship between income and overweight in students. A large pocket money will encourage students to often consume modern foods with consideration and hope that they will be accepted among their peers. Teenagers with large pocket money also have the freedom to choose their own food, buy whatever they like regardless of whether the food is nutritionally balanced or not.

Table 10. Relationship between nutrition knowledge and overweight

Nutrition knowledge	Overweight				n	%	p
	Normal		more				
	n	%	n	%			
Not good	9	25	27	75	36	100	
Good	20	66.7	10	33.3	30	100	0.017
Total	29	43.9	37	56.1	66	100	

Sig value is known. (P-value) of 0.017 < 0.05, it is concluded that there is a significant relationship between knowledge and overweight in students. Errors in food choices and insufficient knowledge about nutrition will lead to nutritional problems that ultimately affect nutritional status. Good nutritional status can only be achieved with a good diet, which is a diet based on the principles of a balanced, natural and healthy menu.

3.3 Discussion

a. Relationship between Diet with Overweight

Poor diet can cause excess nutrients that contribute to overweight, this is based on the speed of formation of new fat cells increases and the greater the speed of fat storage, the greater the number of fat cells and overweight will occur. In general, adolescents like carbohydrate-rich foods that can trigger overweight. Overweight in adolescents is caused by excessive food input.

Diet has a significant relationship with the incidence of overweight. The frequency of eating is the number of meals a day, the results of the study obtained the prevalence of the frequency of eating more than 3 times a day is greater than the prevalence of eating 2 times a day, which is about 30 students out of a total sample of 66 students have a frequency of eating more than 3 times a day. This can affect the amount of food intake that enters the body so as to cause fat accumulation and increase the risk of overweight. The similar statement was which states that there is a significant relationship between diet and overweight. Children who have an excessive diet have a prevalence ratio of 3 for overweight [7].

b. Relationship between Physical Activity and Overweight

The results of this study show results that are in line with the theory and hypothesis which argue that physical activity has a significant relationship with overweight. In addition, respondents who do light physical activity every day have a 3 times greater chance and risk of being overweight than those with good and heavy activity. The relationship between physical activity and overweight is related to the imbalance of incoming and outgoing energy expenditure. The remaining energy in the body due to low physical activity will turn into body fat which is then associated with overweight.

In this study, most of the physical activity of JHS N 4 Banjar students was light. Physical activities that children usually do are playing cell phones, watching TV, studying in class and sleeping for a long time. Physical activity can affect the incidence of overweight, this is due to the imbalance between energy intake into the body and energy released from the body.

The era of globalization with all the increasingly sophisticated that will reduce the opportunity to do physical activity, they spend time with friends in the classroom. Outside of school hours respondents spend time watching television, cycling, playing games or studying, causing obesity in children [8].

c. Relationship between Income and Overweight

The results of statistical analysis showed that there was a significant relationship between the amount of income of JHS N 4 Banjar students with the incidence of overweight with a value of (p=0.014). Similar results were shown in the research of Husanah, regarding the relationship of pocket money with the incidence of overweight in Pekanbaru. The statistical test results obtained a p value = 0.005 (p < 0.05) which means there is a relationship between pocket money and the incidence of overweight. Similar results were also shown by Een (2011), who explained that there was a significant relationship between children's pocket money and the occurrence of overweight (p value = 0.022). A similar statement was made by Sanjawandi [9], who explained that there was a significant relationship between pocket money and overweight in students at SMA Negeri 4 Kendari.

d. Relationship between Nutrition Knowledge and Overweight

The results of statistical analysis showed that there was a significant relationship between nutritional knowledge of SMP Negeri 4 Banjar students and the incidence of overweight with a value (p value < 0.05), namely (p=0.017). attitude grows starting from knowledge which is perceived as a good or bad

thing, then internalized into himself. This can be interpreted that good and bad attitudes are formed from the knowledge component and this will affect one's behavior in this case is the selection of a balanced diet.

This is related to the theory that says that a person's level of nutritional knowledge affects attitudes and behavior in choosing food which determines whether or not a person understands the benefits of the nutritional content of the food consumed (Sediaoetama, 2000). Furthermore, Sediaoetama (2000) argues that mistakes in choosing food and insufficient knowledge about nutrition will lead to nutritional problems that ultimately affect nutritional status. Good nutritional status can only be achieved with a good diet, which is a diet based on the principles of a balanced, natural and healthy menu.

The results of this study indicate that there is a very strong relationship between the level of nutritional knowledge and the incidence of overweight in students of SMK Negeri 1 Biaro where the p value = 0.042 ($p < 0.05$). These results are in accordance with research conducted by Sartika RA. (2011), which states that there is a relationship between the level of nutritional knowledge and the incidence of overweight.

4. CONCLUSION AND RECOMMENDATION

The conclusion of this study is that the incidence of overweight in junior high school students is closely related to diet, nutrition knowledge, and weight status. A balanced diet containing vegetables, fruits, proteins, and carbohydrates in the right proportions is necessary to maintain a healthy weight. In addition, a good knowledge of nutrition can help students in choosing the right food according to their body needs.

Various implications and recommendations can be drawn from the results of this study. First, education on nutrition and healthy eating should be provided regularly in schools as part of the curriculum. This can improve students' nutritional knowledge and help them make healthier food choices. This study makes an important contribution in understanding the factors associated with the incidence of overweight in junior high school students. With a better understanding of students' diets and nutritional knowledge, and with support from various parties, it is hoped that a healthier younger generation can be created and avoid the risk of overweight and other related health problems[10].

REFERENCES

- E. Warganegara and N. N. Nur, "Faktor Risiko Perilaku Penyakit Tidak Menular," *J. Major.*, vol. 5, no. 2, pp. 88–94, 2016.
- Kementerian Kesehatan Republik Indonesia, "Hasil Riset Kesehatan Dasar (Riskesdas)," Jakarta, 2018.
- I. W. Kurdanti, N. H. Syamsiatun, L. P. Siwi, M. M. Adityanti, D. Mustikaningsih, and K. I. Sholihah, "Faktor-Faktor Yang Mempengaruhi Kejadian Obesitas Pada Remaja," *J. Gizi Klin. Indones.*, vol. 11, no. 4, p. 179, 2015.
- A. Mutia, Jumiyati, and Kusdalina, "Pola Makan Dan Aktivitas Fisik Terhadap Kejadian Obesitas Remaja Pada Masa Pandemi COVID-19," *J. Nutr. Coll.*, vol. 11, no. 1, pp. 26–34, 2022.
- A. L. Klibanov, "Ligand-Carrying Gas-Filled Microbubbles: Ultrasound Contrast Agents For Targeted Molecular Imaging," *Bioconjugate Chem.* 16, vol. 16, no. 1, pp. 9–17, 2015.
- N. Mawaddah, Jumirah, and E. Nasution, "Gambaran Pola Makan Dan Kejadian Obesitas Pada Masyarakat Suku Gayo Di Desa Titi Pasri Kecamatan Semadam Kabupaten Aceh Tenggara Tahun 2017," *J. Gizi, Kesehat. Reproduksi Dan Epidemiol.*, vol. 1, no. 3, pp. 1–10, 2017.
- M. Andriardus, "Hubungan Antara Pola Makan Dan Aktivitas Fisik Dengan Kejadian Berat Badan Lebih Baik Pada Remaja Di Sekolah Menengah Atas 4 Semarang," Universitas Diponegoro, 2011.
- Evan, J. Wiyono, and E. Candrawati, "Hubungan Antara Pola Makan Dengan Kejadian Obesitas Pada Mahasiswa Di Universitas Tribhuwana Tungadewi Malang," *Nurs. News J. Ilm. Mhs. Keperawatan*, vol. 2, no. 3, pp. 708–717, 2017.
- L. Sajawandi, "Pengaruh Obesitas Pada Perkembangan Siswa Sekolah Dasar dan Penanganannya Dari Pihak Sekolah Dan Keluarga," *JPSD (Jurnal Pendidik. Sekol. Dasar)*, vol. 1, no. 2, pp. 1–13, 2015.
- Sediaoetama and A. Djaeni, *Ilmu Gizi Untuk Mahasiswa dan Profesi*, 1st ed. Jakarta: Dian Rakyat, 2000.