



Analysis of The Relationship Between Instant Noodle Consumption and Physical Activity with Adolescent Nutritional Status at MTS Al-Madani Pontianak

Virgilius Phasacola Tiko Kafaso^{1, *}, Yuyun Tafwidhah², Yoga Pramana³

^{1,2,3}Program Studi S1 Keperawatan, Fakultas Kedokteran, Universitas Tanjungpura, Pontianak Jalan Prof. Dr. H. Hadari Nawawi, Pontianak, Kalimantan Barat 78124, Indonesia

¹ I1031201057@student.untan.ac.id*, ²yuyun tafwidhah@ners.untan.ac.id, ³yoga@ners.untan.ac.id

ABSTRACT

Indonesia continues to experience nutritional problems across all age groups, including adolescents.. High consumption of instant noodles and the prevalence of a sedentary lifestyle can impact adolescents' nutritional status. Healthy adolescents are an investment in the nation's future; therefore, it is crucial to maintain good nutrition by regulating consumption patterns and activity levels. The aim of this study was to examine the relationship between instant noodles consumption, physical activity, and nutritional health among adolescents. This quantitative research utilized a cross-sectional approach, with 112 respondents from grades 7 and 8 at MTs Al-Madani Pontianak selected via total sampling method, meeting both exclusion and inclusion criteria. Data were collected using a food frequency questionnaire and a physical activity questionnaire. Statistical analysis employed Kendall Tau test to understand the association between instant noodles consumption, physical activity, and nutritional status. The bivariate analysis results showed a significance value of p (0.292) for the frequency of instant noodles consumption and nutritional status, and p (0.709) for physical activity and nutritional status. The study's findings indicated no significant relationship.

Keywords: *Adolescents, Instant Noodle Consumption, Nutritional Status, Physical Activity*

1. INTRODUCTION

Indonesia still experiences a triple burden of nutrition problems in every age group, including undernutrition, which includes stunting and wasting, micronutrient deficiencies and overnutrition, which includes obesity (Unicef,2019). Riskesdas Provinsi Kalimantan Barat tahun 2018 based on IMT/U showed 1.9% poor nutritional status experienced by adolescents aged 15 to 15 years and 4.1% experienced obese nutritional status. Meanwhile, in Pontianak City, 0.97% of adolescents experienced very thin nutritional status and 7.04% of adolescents experienced obese nutritional status. From these data, it can

be seen that Pontianak City itself has not been free from nutritional status problems.

Along with the times, the Indonesian population has experienced changes in diet due to the inculturation of western cultures, one of which can be seen from the presence of restaurants to fast food and junk food products in Indonesia (Widyastuti & Sodik,2018). In Wardani (2023) research showed a relationship between the frequency of junk food consumption, one of which is instant noodles, and nutritional status in adolescents. Data from the Indonesian Central Bureau of Statistics in 2022 showed that the average weekly consumption per person of instant noodle food

*Virgilius Phasacola Tiko Kafaso.

Tel.: -

Email: I1031201057@student.untan.ac.id

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ingredients in the Regency/City in 2022 in Pontianak City was 1.25 billion servings/packs.

In addition to diet, physical activity also affects nutritional status in adolescents. Adolescents who carry out physical activities will experience an increase in metabolism in their body, the increase is produced by burning calories that occur due to burning body fat (Widiastuti & Widiyaningsih, 2023). Riskesdas tahun 2018 in West Kalimantan shows the age category 10-14 years with the incidence of the proportion of physical activity in the less category of 36.79% and 63.21% in the heavy category. Research by Harjatmo et al., (2022) shows if there is a link to physical activity on the nutritional status of adolescents, this research is in line with previous research conducted by Izhar (2020).

Based on the above phenomena and studies, to determine the relationship between instant noodle consumption and physical activity with nutritional status, the problem formulation in this study is "How is the relationship between instant noodle consumption and physical activity with the nutritional status of adolescents at MTs Al-Madani Pontianak?".

2. METHODS

This research was conducted on May 4, 2024, conducted after passing the ethical review test No. 2898/UN22.9/PG/2024 by the Ethics Review Division of the Faculty of Medicine, Tanjungpura University: 2898/UN22.9/PG/2024 by the Ethics Review Division of the Faculty of Medicine, Tanjungpura University with the place of research at MTs Al-Madani Pontianak. The type of research used is quantitative research by explaining the relationship of independent variables, namely instant noodle consumption and physical activity with the dependent variable, namely adolescent nutritional status. This study used a cross sectional approach to study the correlation between risk factors by approaching or collecting data at one time (Ariani, 2014 in Ayu et al., 2020). Respondents of this study were students in grades 7 and 8 MTs Al-Madani Pontianak totaling 112 respondents who were obtained using the total sampling method and had met the exclusion and inclusion criteria. The instrument used to measure instant noodle

consumption is FFQ (Food Frequency Questionnaire) adapted from Pratiwi et al., (2021). The application of FFQ is by recalling the consumption of instant noodles in packs for the last 1 week to see the respondents' instant noodle consumption habits. To measure physical activity using a physical activity questionnaire adapted from Lathifah (2022) research. The application of the physical activity questionnaire by recording method all activities carried out in 24 hours for 2 days on school days and holidays which are expressed in Physical Activity Level (PAL) then converted in minutes/hour duration into Physical Activity Rate (PAR) value. After all data needs are collected, data processing in this study uses the Kendall Tau test analysis to determine the relationship between instant noodle consumption and physical activity with nutritional status.

3. RESULT AND DISCUSSION

Table 1. Frequency Distribution of Instant Noodle Consumption of Respondents at MTs Al-Madani

Instant Noodle Consumption	Frequency of Respondents	Percentage
Often	60	74.1%
Rarely	21	25.9%
Total	81	100%

Table 1 shows the frequency of instant noodle consumption of respondents, the results of respondents' instant noodle consumption in the frequent category (>2 packs/week) as many as 60 (74.1%) people and the rare category (≤ 2 packs/week) as many as 21 (25.9%) people.

The number of teenagers who consume instant noodles cannot be separated from the delicious taste produced and the instant or practical nature so that it does not take long to process it, besides that for teenagers, they should already know that consuming instant noodles regularly and excessively is not beneficial to health, but that is also ignored by teenagers and still choose to consume instant noodles. This is in line with research conducted by Efrizal (2021) which states that 35.6% of respondents gave a good impression the last time they consumed instant noodles, then

64.4% of respondents knew the dangers associated with consuming instant noodles, but good knowledge related to the dangers of consuming instant noodles did not reduce respondents' interest in consuming instant noodles, in fact in the study there were 20% of respondents who consumed instant noodles more than 4 times in the last one week measurement.

Table 2. Distribution of Respondents' Physical Activity at Mts Al-Madani

Physical Activity Category	Frequency of Respondents	Percentage
Heavy Activity	11	13.6%
Moderate Activity	14	17.3%
Light Activity	56	69.1%
Total	81	100%

Table 2 shows the physical activity above, the results of physical activity of respondents in the category of heavy activity were 11 (13.6%) people, moderate activity were 14 (17.3%) people, light activity were 56 (69.1%) people. Light activity that occurs in adolescents can be caused by technological developments in the form of gadgets that are now integrated into daily life, besides that the development of sedentary lifestyle behavior is one aspect that results in low physical activity in adolescents, besides the long time spent at school results in most adolescents spending the rest of their daily time relaxing.

The results are in line with research conducted by Alotaibi & Makkawy (2021) stating that technological developments cause almost everyone to utilize their free time in front of gadget screens and tend to live with a sedentary lifestyle that is low in physical activity, the research was supported by research by Alfionita et al., (2023) which revealed that the majority of adolescents have a sedentary lifestyle of more than two hours per day, which is the maximum limit of sedentary activity. small screen playback on computer/laptop/HP activities (for playing games, social media, listening to music, etc.), watching TV, and watching videos are activities that spend the most time on sedentary activities.

Based on the results of the study, heavy physical activity was mostly found in male respondents, moderate activity was mostly

found in female respondents and light physical activity was mostly found in female respondents. The large number of light physical activity categories in female respondents is due to the lack of time allocation for exercise so that the activity is classified as light compared to men who allocate more time for sports. This is in accordance with research conducted by Akurat & Maksum (2021) which states that the low level of women's sports activity is caused by several factors including interest factors, busy activity factors so that they choose not to exercise, material factors which include the physical conditions needed when exercising and injury factors that cause women not to exercise.

Table 3. Distribution of Nutritional Status of Adolescents at MTs Al-Madani

Nutrition Status	Frequency of Respondents	Percentage
Severe Thin	27	33.3%
Thin Light	10	12.3%
Normal	37	45.7%
Light Fat	1	1.2%
Severe Fat	6	7.4%
Total	81	100%

Table 3 shows the nutritional status based on BMI above, the results of the IMT of respondents in the category of severe thinness as many as 27 (33.3%) people, severe thinness as many as 10 (12.3%) people, normal as many as 37 (45.7%) people, mild fat as many as 1 (1.2%) people, heavy fat as many as 6 (7.4%) people.

Differences in nutritional status that occur are influenced by many variables, some of which can have an influence on nutritional status, namely consumption factors and physical activity factors, consumption factors should be directly proportional to physical activity factors, the more consuming something must be balanced with frequent movement as well. This is in line with the Ministry of Health (2019) which states that the amount of energy intake such as foods that contain a lot of energy (with lots of fat, sugar, and fiber) can cause overweight, and sedentary activity patterns (with little movement) can reduce the amount of energy expended, increasing the risk of overweight. The same can happen to people with undernutrition status, as the amount of

energy expended is not directly proportional to the amount of energy taken in.

Table 4. Analysis of the Relationship between Instant Noodle Consumption and Adolescent Nutritional Status at MTs Al-Madani

Nutrition Status	Frequency of Instant Noodle Consumption			
	Number of Respondents (Σ)		Percentage (%)	
	Often		Rarely	
	Σ	%	Σ	%
Severe Thin	22	36.7	5	23.8
Thin Light	5	8.3	5	23.8
Normal	31	51.7	6	28.6
Light Fat	0	0.0	1	4.8
Severe Fat	2	3.3	4	19.0
<i>Kendall Tau</i>			<i>P = 0.292</i>	
<i>Correlation Coefficient</i>			0.118	

Table 4 shows a significance value of $p = 0.292$ which means the value of $\alpha > 0.05$, this shows that there is no relationship between the frequency of instant noodle consumption and nutritional status in adolescents at MTs Al Madani Pontianak. The results of this study are in line with research conducted by Amelia & Nugroho (2021) which showed a p value of 0.058 and supported by research by Hatta (2019) which obtained a p value of 0.833, meaning that there is no relationship between the frequency of consumption of fast food, one of which is instant noodles with nutritional status.

The absence of a relationship between the frequency of consumption of instant noodles and nutritional status is influenced by other factors. Although instant noodles are known as high carbohydrate foods, most respondents did

not indicate consuming instant noodles every day, although instant noodles are referred to as a substitute for staple foods but still unable to replace the role of rice as a staple food, this can be seen from the large number of instant noodle consumption as a side dish to eat with rice. In addition, the effects of consuming instant noodles, which are high in carbohydrates and are not wholesome food, may not be seen now, but can become a time bomb later on when the body is not as healthy and fit as in adolescence. This is in line with a study conducted by Delima (2021) in Amanda et al., (2023) which states that consuming instant noodles can cause weight gain, damage to the digestive system, appendicitis, ulcers, cancer and high blood pressure.

Food technology expert from Bogor Agricultural Institution, Dr. Nuri Andarwulan (2019) said that although rice and instant noodles both consist of carbohydrates, the nature of the two is different. The nature of instant noodle carbohydrates is simple, while rice carbohydrates are complex. Simple carbohydrates are more easily absorbed by the body but the person will feel hungry faster, while complex carbohydrates give the effect of satiety longer than simple carbohydrates. The absence of a relationship between instant noodles and nutritional status is also influenced by other consumption factors such as rice and other foods that can equally affect nutritional status. While respondents who experience nutritional problems other than as a result of consumption factors can be caused by other factors such as genetics, environment and others.

Table 5. Analysis of the Relationship between Physical Activity and Adolescent Nutrition Status at MTs Al-Madani

Nutrition Status	Frequency of Physical Activity					
	Number of Respondents (Σ)			Percentage (%)		
	Heavy		Medium		Light	
	Σ	%	Σ	%	Σ	%

Severe Thin	3	27.3	5	35.7	19	33.9
Thin Light	1	9.1	1	7.1	8	14.3
Normal	7	63.6	6	42.9	24	45.7
Light Fat	0	0.0	1	7.1	0	0.0
Severe Fat	0	0.0	1	7.1	5	8.9
<i>Kendall Tau</i>					<i>p = 0.709</i>	
<i>Correlation Coefficient</i>					<i>-0.030</i>	

Table 5 shows a significance number of p 0.709 which means the value of $\alpha > 0.05$, which indicates H_0 is accepted. This shows that there is no relationship between physical activity and nutritional status in adolescents at MTs Al-Madani Pontianak. The results of this study are in line with research conducted by Saint & Ernawati (2019) with the results of a p value of 0.892 which means there is no relationship between physical activity and nutritional status.

The nutritional status of respondents who are mostly in the normal category shows that factors that affect nutritional status such as consumption patterns, physical activity and others are still balanced with each other. The number of respondents who spend their time doing light activities such as lying 2-3 hours a day, watching TV 1-2 hours a day, playing games 1-2 hours a day which are classified as passive or known as sedentary behavior does not have a direct impact on the nutritional status of respondents who are mostly in the normal category.

In addition, the metabolism in the adolescent body is still relatively good so that it does not cause nutritional problems. This has similarities with Darwin (2019) research which states that basal metabolism can be influenced by age, where the basal metabolism of younger people is higher than that of older people. The amount of energy used by body tissues during physical and mental rest is known as basal metabolism. This energy is required to carry out essential

body functions, such as food metabolism, enzyme and hormone secretion, heart rate, breathing, maintaining muscle tone, and controlling body temperature. In addition, other factors that affect nutritional status may also affect the results of this study.

CONCLUSION

Based on the results of the study, it can be concluded that instant noodle consumption and physical activity have no effect on nutritional status. The absence of a relationship between variables in this study can be caused by variables that were not measured in this study. The fact that rice is still the daily staple food can affect the measurement of instant noodle consumption which is a substitute for staple food. In addition, in adolescence, when the body is healthy and fit, it allows the body's metabolism to run optimally so that it can avoid nutritional status problems. Other interconnected variables that were not measured in this study can affect the results of the study so that it becomes a limitation in this study.

ADVISE

The limitations in this study are expected for future researchers to measure other variables that can affect nutritional status, In addition, the scope of research is expected to be wider so as to produce more varied data.

REFERENCES

- Akurat, Y., & Maksum, A. (2021). Faktor-Faktor Penyebab Rendahnya Partisipasi Siswa Putri Dalam Ekstrakurikuler Futsal Di Sman 18 Surabaya. *Jurnal Pendidikan Olahraga Dan Kesehatan*, 9(1), 171–177.
- Alfionita, N., Sulistyorini, L., & Septiyono, E. A. (2023). Hubungan Sedentary Lifestyle dengan Status Gizi Remaja pada Masa Pandemi Covid-19 di SMPN 14. *E-Journal Pustaka Kesehatan*, 11(2), 93.
- Alotaibi, H. T., & Makkawy, E. (2021). Prevalence of Overweight and Obesity and Their Associated Factors Among Health Sciences College Students, Saudi Arabia. *Journal of Family Medicine and Primary Care*, 10(2), 961–967.

- Amanda, Destiarmini Nastiti, & Lillah Khofifah. (2023). Pengaruh Konsumsi Mie Instan Terhadap Status Gizi pada Mahasiswa Poltekkes Kemenkes Banjarmasin. *Jurnal Nutrisia*, 20(10), 203–213.
- Ayu, I., Chandramurtie, A. W. S., Sujaya, I. N., & Yulianti Elly. (2020). Hubungan Tingkat Pengetahuan dan Peranan Orang Tua Dengan Perilaku Cuci Tangan Pada Siswa Sekolah Dasar. *Poltekkes Denpasar*.
- Badan Pusat Statistik Indonesia. (2022). Rata-rata Konsumsi Perkapita Seminggu Menurut Kelompok Bahan Makanan Lainnya Per Kabupaten/kota (Satuan Komoditas), 2021-2022.
- Darwin. (2019). Perbandingan Laju Metabolisme Basal Menurut Status Berat Badan Atlet Karate Kota Makassar.
- Efrizal, W. (2021). Perilaku Konsumsi Mie Instan pada Remaja. *Jurnal Ilmiah STIKES Citra Delima Bangka Belitung*, 4(2).
- Harjatmo, T. P., Febriyanti, N., Astuti, trina, & Rachmat, M. (2022). Gambaran Asupan Fast Food, Aktivitas Fisik, Dan Screen Time Dengan Status Gizi Pada Siswa Di Smp Hang Tuah 2 Jakarta Selatan. *Jurnal GIZIDO*, Vol 14 No 1. <https://doi.org/DOI>: <https://doi.org/10.47718/gizi.v14i1%20M%20ei.1620>
- Izhar, M. D. (2020). Hubungan Antara Konsumsi Junk Food, Aktivitas Fisik Dengan Status Gizi Siswa Sma Negeri 1 Jambi. *Jurnal Formil*, Vol 5, No 1. <https://doi.org/DOI>: <https://doi.org/10.35842/formil.v5i1.296>
- Kemenkes. (2022e). Pengukuran status Gizi dengan Antropometri Gizi.
- Lathifah, D. N. (2022). Hubungan Aktivitas Fisik Dengan Status Gizi Remaja Di Smas It Raudhatul Jannah Kota Cilegon. Program Studi Ilmu Gizi, Fakultas Ilmu Kesehatan, Universitas Muhammadiyah Surakarta .
- Pratiwi, F. I., Ulvie, Y. N. S., Handarsari, E., & Susantini, P. (2021). Konsumsi Mie Instan dan Status Gizi Remaja di Desa Kalongan Ungaran Timur Kabupaten Semarang. *Prosiding Seminar Nasional UNIMUS*, 4.
- Riskesdas. (2018a). Laporan Nasional Riskesdas.
- Riskesdas. (2018b). Laporan Provinsi Kalimantan Barat Riskesdas.
- Unicef. (2019). Status Anak Dunia.
- Wardani, N. A. P. (2023). Pola Konsumsi Junk Food Dan Aktivitas Fisik Siswa Gizi Lebih/Obesitas Di Smk Negeri 1 Denpasar. *Diploma Thesis, Poltekkes Kemenkes Denpasar Jurusan Giz*.
- Wicaksono, R., A. R. Tuasikal, & N. Indahwati. (2021). Hubungan Status Gizi Dan Status Sosial Ekonomi Terhadap Aktivitas Fisik Siswa Selama Pandemi Covid-19. *Jurnal Education And Development*, Vol 9 No 2 (2021): Vol.9.No.2.2021.
- Widiastuti, A. O., & Widiyaningsih, E. N. (2023). Hubungan Aktivitas Fisik Dengan Status Gizi Remaja Sekolah Menengah Atas Di Kota Surakarta. *Prosiding University Research Colloquium, Proceeding of The 16th University Research Colloquium 2022: Bidang MIPA dan Kesehatan*, 66–74.
- Widyastuti, D. A., & Sodik, M. A. (2018). Pengaruh Kebiasaan Konsumsi Junk Food Terhadap Kejadian Obesitas Remaja. <https://doi.org/https://doi.org/10.31219/osf.io/7d8ey>