THE RELATIONSHIP BETWEEN FOOD CONSUMPTION, BREAKFAST HABITS AND PHYSICAL ACTIVITY WITH ACADEMIC PERFORMANCE IN ADOLESCENTS

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ABSTRACT

The Harmonized Test Score (HTS) results indicate that Indonesian children's academic performance is very low, scoring 394, well below the normal score of 625. Grade XI students' skills are similar to those of grade VI students. Eating habits, lifestyle, and physical activity significantly impact adolescent development. A total of 98 students from Health Vocational High School Annisa, Citereup, Bogor participated in this study with the purpose of investigating the relationship between fast food consumption, breakfast habits, and physical activity with academic achievement. Results showed 78. 6% had good academic achievement, 53. 1% frequently consumed fast food, 60. 2% had good breakfast habits, and 71. 4% were physically active. A significant connection was found between breakfast habits and academic achievement (p=0. 037), while fast food consumption (p=0. 418) and physical activity (p=0. 785) showed no significant relationship. Schools should educate about the importance of breakfast and the dangers of fast food and provide healthy canteen options to prevent students from buying fast food when they miss breakfast or lunch.

Keywords: Achievement; Fast food; Breakfast; Activity

INTRODUCTION

Adolescents are the main determinants of the quality of human resources responsible for the country's progress, so we must pay attention to adolescents regarding health and nutrition (Uramako, 20210). Adolescents are the country's most important human resources because they represent its future generation. The middle adolescence phase (middle adolescence) is where adolescents are fond of self-exploration regarding food, breakfast habits, and physical activity.

In the results of global tests conducted on school children in Indonesia, including the Program for International Student Assessment (PISA), Indonesia ranks 73 in mathematics, 74 in literacy, and 71 in science out of a total of 78 countries worldwide. The Trends in International Mathematics and Science Study (TIMSS) and The Progress in International Reading Literacy Study (PIRLS) surveys found that Indonesian children's learning outcomes are below average, particularly in mathematics, science, and reading. The results of the Harmonized Test Score (HTS) Score in Indonesian children are 394, where the standard value is 625; this shows low academic achievement in Indonesia. The low quality of learning in primary and secondary education is a crucial issue that must be resolved immediately. In Indonesia, high school students in the second semester of the first year can only achieve competency achievements equivalent to grade VI elementary school students. This means that although children have spent so long in school, regarding quality and competence, they have not learned much. When Learning Adjusted Years of Schools or LAYS is conducted, the expected number of years of schooling for Indonesian children, normally 12.4 years, drops to 7.8 years (Aloysius, 2023). The Kurious survey from Kata Data Insight Centre (KIC) found that most Indonesians eat fast food more than once a week, with 55.5% of women and 44.5% of men consuming it weekly (Annur, 2023). Research in Bogor City shows that 66.67% of fast-food buyers are men, while 33.33% are women (Lesti, 2017). In research (Saleh, 2019), the variable of fast-food consumption habits has a significant relationship with academic achievement of students at SMAN 1 Surakarta and SMAN 4 Surakarta has a p-value (0.046)

p < (0.05) indicating that 52.1% of students consume fast food less than twice a week, while 20.5% have mild cognitive function decline. High consumption of fast food can cause obesity and hypertension. Moreover, can reduce the physical capacity and cognitive function of adolescents.

Fast food is defined by its affordability, substantial serving sizes, and energy-dense items that are heavy in calories and fat. In addition, fast food influences diets because of its easy accessibility and variety according to taste and budget. These foods are also quick to prepare, such as fried chicken, pizza, burgers, fries, pasta, nuggets and sausages. Overall, academic achievement growth is slower among teenagers who consume more fast food. Teens who ate fast food on a daily basis experienced slower growth in math, reading, and science than teens who did not eat fast food. Teenagers who reported eating more fast food had lower rates of academic development.

Adolescents with higher fast-food consumption tend to show slower progress in academic performance. Those who consumed fast food daily exhibited slower advancements in mathematics, reading, and science compared to peers who avoided fast food. Increased fast food intake among teenagers was associated with a decreased rate of academic improvement (Saleh, 2019).

In addition to fast food, a person's academic achievement is influenced by various factors, including breakfast habits. According to the findings of analysis conducted by Ariyasa and Datya (2016), academic achievement is significantly correlated with breakfast consumption. The two-variable analytic test indicates a substantial correlation between breakfast consumption and academic achievement. With the results of the calculation obtained, the amount of r-count = 0.760. The nutritional needs of adolescents can be determined by the amount of nutrients they consume for their growth and daily activities. In addition, learning achievement is influenced by internal factors and external factors. The health of adolescents is a fundamental aspect that cannot be overlooked. Adolescent health can be improved through changes in their eating, sleeping and physical activity habits. Physical activity can also help people make a healthy and better lifestyle by doing regular, measured, and scheduled physical activity, which can also impact learning achievement (Ariyasa & Datya, 2016). According to Alif's research (2020), physical activity has a relationship with academic achievement (p-value 0.048) (P> 0.05). In this study conducted at Vocational High School Pharmaca Medan, students do light physical activities more often, such as walking at school and home, playing more games, watching TV, or using social media. This habit makes them rarely sweat and gain weight, reducing their motivation to move and be active in learning. Adequate physical activity of approximately 150 minutes in 1 week allows students or learners to understand lessons because of better concentration to achieve better than someone with little or no physical activity.

Another study showed that about 15.20% of adolescents chose fast food as lunch. This needs special attention because adolescents are the nation's next generation because these foods are low in energy but high in fat (Alif, 2020). Lack of energy intake will reduce student learning concentration (Rositadinyati, et al, 2020). Lack of energy intake during adolescence will have an impact on student activities at school, such as lethargy, fatigue, growth retardation, energy intake in adulthood and decreased achievement. In the Balanced Nutrition Guidelines, it is said to create a healthy, intelligent, competent and competitive generation so that other nations can see and respect it. One way is to fulfil the needs of breakfast intake (Amalia & Trismiana, 2014).

According to the findings a preliminary study of 30 students by looking at the students' report card scores, it was found that most students had report card scores classified as low at the Minimum Determination Criteria (KKM) determined by the school, namely with a score of 78 with a percentage of 50% of the total number. In addition to looking at report card scores, researchers also looked at the habit of consuming fast food, breakfast habits, and physical activity. They found that students who often consume fast food, rarely do breakfast, and lack physical activity have poor performance compared to students who rarely consume fast food and often do physical activity and always do breakfast. In addition, researchers conducted interviews with several teachers. Similar answers were also given that students often consume

fast food and rarely do physical activity because the learning time is quite long, the busy activities carried out, and the early entry hours result in students at Health Vocational High School Annisa Citereup Bogor forgetting breakfast time and choosing to buy fast food during pre-entry and break times at the school canteen. Based on this information and background, the author is interested in researching the correlation between fast food consumption, breakfast habits, physical activity and academic achievement among Health Vocational High School Annisa Citeureup Bogor students.

METHOD

In this study, the design used was quantitative analytic, with the design being cross-sectional. This study was conducted at the Health Vocational High School Annisa Citeureup Bogor. The time frame for this study was November 2023–August 2024. The total sampling method in this study was 98 samples taken from all classes, including XI Pharmacy. Classes X and XII were not included in this study because the school suggested that when taking the X class population, the X class was in the transition period from junior high school to vocational school, while why not taking class XII, the school did not allow it because of the school exam preparation process. In this study, academic achievement is the dependent variable, whereas the independent variables include the frequency of fast food consumption, breakfast habits, and physical activity. This study used a questionnaire instrument to measure the independent and dependent variables using report card scores. Breakfast habit variables were collected using a questionnaire. The Food Frequency Questionnaires (FFQ) questionnaire collected fast food consumption variables. Physical activity variables were collected using the Global Physical Activity Questionnaire (GPAQ). Secondary data in this study were obtained from students' report cards in the second semester of class XI if it is said to be good when the Minimum Completeness Criteria (KKM) value is Good KKM ≥ 78 and less good KKM < 78. In this research, the chi-square test was implemented to analyze the data with a 95% confidence level. If the chi-square test requirements are not met, another alternative test, namely the Fisher exact test, is used.

RESULT AND DISCUSSION

Table 1. Frequency distribution based on academic achievement, fast food consumption, breakfast habits and physical activity.

Variable	Respondent	
	Total (n)	Percentage (%)
Academic Achievement		
Good	77	78,6
Poor	21	21,4
Fast food consumption		
Rarely	46	46,9
Frequent	52	53,1
Breakfast Habits		
Good	59	60,2
Not Good	39	39,8
Physical Activity		
Active	70	71,4
Less Active	28	28,6

Table 1 shows that the Academic Achievement Category is categorized into two categories: good and less good. In this study, the most Academic Achievement is good, or the score is above or equal to the KKM score of 78, namely as many as (78.6%); besides that, the distribution of frequency Respondents who consume fast food in this study is most often in the category ≥ 3 times a week as many as (53.1%). The minimum respondent fast food consumption is 1 time/week, and the maximum is 12 times/week. The average consumption of respondents consuming fast food in a week is 3.20, which means that in the

last week, respondents' average fast-food consumption was often in this study, often categorizing if they consumed≥ 3 times a week. A total of 53.1% of respondents have fast food consumption habits in the frequent category; physical activity in this study showed a total of 60.2% of respondents had breakfast habits in the good category; 71.4% showed that physical activity was categorized into 2, namely active and less active in this study the most physical activity was active, as many as (71.4%).

Table 2 Statistical Test Results between Fast Food Consumption, Breakfast Habits and Physical Activity with Academic Achievement.

Variabel	Academic Achievement				Total		P-Value
	Good		Poor				
	N	%	N	%	N	%	
Fast food consumption							
Rarely	3	73,9	12	26,1	46	100	0,418
Frequent	43	82,7	9	17,3	52	100	
Breakfast Habits							
Good	51	86,4	8	13,6	59	100	
							0,037
Not Good	26	66,7	13	33,3	39	100	
Physical Activity							
Active	54	77,1	16	22,9	70	100	0,785
Less Active	23	82,1	5	17,9	28	100	

Based on table 2 shows that respondents with good academic achievement by consuming fast food often as much as (82.7%). The results of the chi-square statistical test in this study indicated no significant association between fast food consumption habits and academic achievement with a p-value = 0.418 (p>0.05). The habit of Health Vocational High School Annisa Citeureup students in consuming fast food is strongly influenced by the habit of not having breakfast and the school environment that provides fast food ranging from french fries, nuggets, sausages, otak-otak to fried chicken, instant noodles in the canteen. The study's findings revealed that fried chicken, instant noodles, and nuggets were the top three fast food items consumed by the participants. The percentage of fried chicken consumption was (24.5%), instant noodles (34.7%) and nuggets (24.5%). In addition, peer invitation greatly influences fast food consumption habits. This happens when respondents do not bring lunch to school and prefer to buy fast food at the school canteen. In addition, trends in the current digitalization period in the form of discounts and types of food that do not take long to serve greatly influence the respondents' fast food consumption habits at school. This study's results are similar to those of Putri (2016), who found that there was no significant link between eating fast food and doing well in school (p-value = 0.258; PR = 0.615; 95% CI = 0.264–1.433) (p > 0.05). This suggests that fast food consumption does not affect the academic performance of the respondents. However, these results differ from the study by Reuter & Forster (2021), which found a negative correlation between fast food consumption and academic achievement over a week, with a p-value of 0.002. This study states that respondents who do not consume fast food have higher scores than respondents who often consume fast food. In addition, in this study, almost half consumed fast food and energy drinks. The results of this study are consistent with the research conducted by Yusuf et al. (2022) conducted at SMPN 17 Makassar, which found no significant relationship between fast food consumption and academic achievement, with a p-value of 0.227 (p > 0.05). This indicates that there is no connection between the habit of consuming fast food and academic achievement. In addition, why in this study is the habit of having a very high fast food consumption category, but there is no relationship; this happens because when respondents do not have breakfast at home, they bring lunch or buy fast food in the school canteen area. In addition, some respondents brought fast food when observed in each class. However, fast food has many harmful ingredients that can cause and affect the occurrence of obesity, hypertension, nutritional

status and other diseases. The protein and calorie content in fast food can help and support micronutrient needs and daily energy needs needed by the body because the protein and calorie content in fast food is very high. However, if consumed long-term, it can affect the respondents' academic performance at school.

The breakfast habits of the respondents demonstrate a significant relationship with academic performance, as indicated by the Chi-Square analysis results, which show a p-value of 0.037 (p < 0.05) and a PR value of 3.188. In addition, the value of the chi-square analysis results is supported by the proportion of respondents who consume good breakfast habits with good achievement with a proportion value (86.4%). The results are supported by the respondent's breakfast time ≤ 10.00 WIB with a percentage of (63.3%) this result is supported by observation of each class and asking each student that if the respondent does not have time to have breakfast at home, the respondent buys fast food or eats lunch before the learning hours begin. In addition, in an interview with the eleventh-grade vice principal, the eleventh grade must bring a bike considering that the class hours are denser than before. Also, they have higher activity due to the many practices in preparation for their fieldwork practice at the time after grade promotion. The findings of this study align with those of a study by Ruhmanto & Eka Ramadhan (2022) at two schools, which discovered a strong correlation between academic achievement and breakfast habits. At SMA 8, the study showed a significant link, with a p-value of (p < 0.003). It was observed that students who skipped breakfast had a lower chance of academic success compared to those who maintained good breakfast habits. At SMAN 4, the p-value = 0.018 showed a similar relationship, with students with a poor breakfast at lower risk than those with a good breakfast.

Results presented in Table 2 indicate that there is no significant relationship between the physical activity of respondents and their academic achievement. This conclusion is supported by the Chi-Square analysis results, which reveal a p-value of 0.785, exceeding the threshold of 0.05. In this study, researchers found that respondents at Health Vocational High School Annisa had students whose physical activity was in the active category with a proportion value (71.4%). The respondents' activities support these results. In contrast, there are many activities from school entry hours, which are earlier than other schools, namely 06.30-17.00 every day from Monday to Friday. In addition, activities outside of school are hectic, with many school assignments and other activities. The results of this study show that most respondents engage in active physical activities. However, the researcher questions why no relationship was found between physical activity habits and academic achievement. Despite physical activity being classified as active, the study suggests that the demanding school schedule may affect the respondents' condition. The heavy workload and intense school activities may lead to stress, fatigue, and physical exhaustion, which in turn can result in mental and physical health problems. This may explain why, despite the respondents being classified as active, no significant relationship was observed between physical activity and academic performance. In addition, excessive physical activity can cause irregular menstrual cycles (dysmenorrhea). Because in this study, most of the respondents were female, with a percentage of (92.9%) High activity levels can affect hormone production and cause dysmenorrhea. Hormonal fluctuations in the body can cause menstrual cycle irregularities, according to research conducted by Ronanza Pretynda et al. (2022). For students at SMA Negeri 1 Kuta Utara, 55% of adolescent girls experience irregular menstrual cycles, mainly due to stress due to many tasks. This stress affects the hormones Luteinizing Hormone (LH) and Follicle Stimulating Hormone Estrogen (FSH), which disrupts the menstrual cycle. The hypothalamic nervous system also plays a role in increased cortisol and hormonal disorders, resulting in eggs not developing and the formation of estrogen and progesterone being disrupted, which ultimately causes irregular menstruation. Stress experienced by adolescents can be categorized as a natural thing, but if the stress is severe, frequent and prolonged, academic achievement will decrease, and the ability to participate in the school world will also be harmed and even tend to damage adolescent behavior. On the other hand, physical activity is very beneficial for respondents. On the other hand, very active physical activity can also have a negative impact on the sustainability of respondents, such as irregular menstrual cycles, which can cause adolescent girls to experience a decrease in academic achievement

and can result in a lack of mood, weak body condition, and a decrease in health which can affect teaching and learning activities so that adolescent academic achievement can decrease especially in this study respondents Most of the adolescent girls. This study's results align with research conducted by Suwandaru and Hidayat (2021). No significant correlation exists between physical activity and student achievement at SMK Negeri 1 Surabaya, as indicated by a significance value of 0.730 (p> 0.05). Most students with moderate achievement and moderate physical activity amounted to 25 people (71.4%), indicating that physical activity is unrelated to good academic achievement. Research conducted by Guimarães et al. (2023). Getting similar results, there is no statistically significant difference between academic achievement and physical activity levels based on school year (p> 0.05, for all) with p-values 0.591 - 0.142 and 0.450. No significant association was found between physical activity levels and academic performance among both male and female students. However, these findings differ from the study by Mulia et al. (2021), which reported a significant link between physical activity and academic achievement in adolescents, as indicated by a statistical test result (p-value = 0.002 < 0.05). In this study, the results of adequate academic achievement with low physical activity are thought to be influenced by other factors such as motivation and interest, while low achievement with moderate and heavy physical activity may be due to a lack of support from other factors such as intellectual and emotional intelligence.

CONCLUSION

According to the results of the study, no correlation was identified between the habits of consuming fast food and physical activity with academic achievement. However, a significant relationship was observed between breakfast habits and academic achievement at Health Vocational High School Annisa Citigroup. These results can be used as references for further research related to academic achievement by differentiating places or research methods; besides that, further researchers can add or look for other variables related to academic achievement so that it can be a varied reference for future researchers. In addition, it is hoped that the school will provide education about the importance of breakfast and the dangers of consuming fast food besides that the school should provide a healthy canteen also made without fast food, because if students do not have breakfast and do not bring lunch, students buy fast food in the school area.

REFERENCES

Alif, S. (2020). Analisis Dampak Konsumsi Jajanan, Aktifitas Fisik, Dan Status Gizi Terhadap Prestasi Belajar Siswa Di Smk Swasta Pharmaca Medan. Jurnal Komunitas Kesehatan Masyarakat, 1(2), 31–39.

Aloysius, K. (2023). Anak Kita Sekolah, Tetapi Tidak Belajar.

Amalia, R. P., & Trismiana, E. (2014). Hubungan Antara Asupan Gizi dengan Prestasi Belajar pada Siswa SMA Negeri I Metro. Holistik Jurnal Kesehatan,8(4), 159162.

Anggrini, D. (2021). Faktor-Faktor Pemicu Stres Pada Siswa Selama Pembelajaran Daring. Jurnal Psikologi Malahayati, 3(1), 39–46.

Annur. (2023). Perempuan Lebih sering Konsumsi Makanan Cepat Saji Ketimbang Laki-laki.

Ariyasa, I. G., & Datya, A. L. (2016). Pengaruh Sarapan Pagi dan Status Gizi terhadap Prestasi Belajar Siswa Sekolah Dasar di Kabupaten Buleleng. Jurnal Virgin, 2(I), 84–91.

Azrimaidaliza dan Purnakarya, I. 2014. Analisis Pemilihan Makanan pada Remaja di Kota Padang, Sumatra Barat. Jurnal Kesehatan Masyarakat Nasional, Vol. 6, No.1.

Guimarães, J. P., Fuentes-García, J. P., González-Silva, J., & Martínez-Patiño, M. J. (2023). Physical Activity, Body Image, and Its Relationship with Academic Performance in Adolescents. Healthcare (Switzerland), 11(4).

Lesti, H. S. dab H. (2017). Analisis Selera Masyarakat Terhadap Restoran Cepat Saji di Kota Bogor. 3(1), 16–28.

Mulia, D. A., Amar, M. I., Sufyan, D. L., & Simanungkalit, S. F. (2021). Hubungan Asupan Energi dan Protein, Kualitas Tidur, dan Aktivitas Fisik Terhadap Prestasi Belajar di SMK Tunas Grafika Informatika 2020. Ghidza: Jurnal Gizi Dan Kesehatan, 5(2), 197–210.

Purtell, K. M., & Gershoff, E. T. (2015). Fast food Consumption and Academic Growth in Late Childhood. Clinical pediatrics, 54(9), 871–877.

Putri, C. M. (2016). Hubungan faktor faktor internal terhadap prestasi belajar siswa kelas 2 di Madrasah Tsanawiyah Pembangunan UIN Jakarta Tahun Ajaran 2015-2016.

Reuter, P. R., & Forster, B. L. (2021). Student health behavior and academic performance. PeerJ, 9.

Rositadinyati, A. F., Purwanti, L., & Faculty, P. H. (2020). jurnal gizi dan kesehatan. 4(1), 79–89.

Ronanza Pretynda, P., Kadek Nuryanto, I., Ayu, P., Darmayanti, R., Studi, P., Keperawatan, S., Kesehatan, F., Teknologi, I., Bali, K., & Kebidanan, S. (2022). Hubungan Tingkat Stres dengan Siklus Menstruasi pada Remaja Putri dalam Pembelajaran Daring di SMA Negeri 1 Kuta Utara. Jurnal Formil (Forum Ilmiah) Kesmas Respati, 7(3), 226–236.

Ruhmanto, D., & Eka Ramadhan, G. (2022). Hubungan Kebiasaan Sarapan Pagi terhadap Prestasi Belajar Siswa Siswi Kelas XII IPA SMA Negeri 8 Tangerang Selatan dan SMA Negeri 4 Tangerang Selatan. SEHATMAS: Jurnal Ilmiah Kesehatan Masyarakat, 1(2), 183–191.

Saleh, A. J. (2019). Hubungan Kebiasaan Konsumsi Makanan Siap Saji (Fast food),Status Gizi dan Kejadian Hipertensi Dengan Fungsi Kognitif Pada Remaja.Tesis Magister Program Studi Ilmu Gizi, 1–116.

Suwandaru, C., & Hidayat, T. (2021). Hubungan Aktivitas Fisik Dengan Prestasi Belajar Siswa Smk Negeri 1 Surabaya. Jurnal Pendidikan Olahraga Dan Kesehatan V, 09(1), 113–119.

Uramako, D.F. (2021). Faktor Determinan yang Berpengaruh terhadap Status Gizi Remaja. Jurnal Ilmiah Kesehatan Sandi Husada, 10(2), pp.560–567 USA: Mc-Graw Hill.

Yusuf, R. A., Muhsanah, F., & Rusyidi, A. R. (2022). Pengaruh Pola Makan, Aktifitas Fisik dan Perilaku Menetap terhadap Prestasi Remaja. Journal of Aafiyah Health Research (JAHR), 3(2), 73–84.

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