



Nutrition Education on The Importance of Breakfast Using Peerleader With Numbered Head Together (NHT) Method Through Comics and Video Media For Students Thamavitya Mulniti School Thailand

Fauziah Nasution¹, Fitriani Pramita Gurning¹, Aslam Bensulong²

¹Fakultas Kesehatan Masyarakat Universitas Islam Negeri Sumatera Utara, Medan

²Thamavitya Mulniti School Yala Thailand

Email corespondensi : fitrianiurning@uinsu.ac.id

Track Record Article	Abstract
<p>Revised: 25 March 2025 Accepted: 25 May 2025 Published: 22 June 2025</p> <p>How to cite : Nasution, F., Gurning, F. P., & Bensulong, A. (2025). Nutrition Education On The Importance Of Breakfast Using Peerleader With Numbered Head Together (NHT) Method Through Comics And Video Media For Students Of Thamavitya Mulniti School Thailand. <i>Contagion : Scientific Periodical of Public Health and Coastal Health</i>, 7(1), 139–152.</p>	<p><i>Good nutrition during adolescence can be done by getting used to implementing healthy intake by fulfilling the concept of balanced nutrition. Prevalence of Malnutrition: Thailand has recorded progress in reducing the level of malnutrition, especially PEM (Protein Energy Deficiency), but there are still some teenagers who are vulnerable experiencing malnutrition, especially in poor and rural areas, apart from that, the problem of adolescent obesity in Thailand is also a nutritional problem in the world. The aim of the service is to provide health education to teenage school children about the importance of breakfast using peer leaders using the numbered heads together (nht) method through comic media. This service method is Asset Based Community Development (ABCD) using peer leaders with the numbered head together (nht) method through comic and video media towards healthy breakfast habits in junior high school students or teenagers at Thamavitya Mulniti School. The results of the service showed that the use of Peer Leaders using the Numbered Head Together (NTH) method using comic and video media was very effective in increasing respondents' knowledge by 79.6%. The suggestion in this service is that schools can make a policy in bringing breakfast supplies to school, which can indirectly monitor school children's breakfast according to balanced nutrition</i></p> <p>Keyword: Importance of Breakfast, Peer Leader, Numbered Head Together (NHT)</p>

INTRODUCTION

Adolescents need to get used to having a healthy breakfast to fulfill the concept of balanced nutrition. School-age children are still found to skip breakfast from home before going to school, such as based on data from American and European countries only about 10-30% per day, Colombo 70% and Nigeria about 52% who skip breakfast every day (World Health Organization, 2019)

Breakfast has benefits in improving blood glucose control, which helps reduce factors that contribute to obesity and diabetes. Despite the well-known benefits of breakfast many people still skip it due to lack of hunger upon waking, not enough time in the morning, and lack of convenience (Haeriyah et al., 2022). In the short term, skipping breakfast can disrupt the distribution of energy intake during the day and result in fewer or larger portions being consumed. In the long term, if adolescents who skip breakfast, do not consume fruits and vegetables but instead consume bread and soft drinks, they will be at risk for obesity in adulthood.

Adolescence (13-18 years) needs nutrition are 2.475-2.675 Kkal, the calorie needs of a healthy breakfast menu that meets the concept of balanced nutrition are 20-25% of daily calorie needs consisting of carbohydrates around 60-68%, protein around 12-15%, fat 15-25% and vitamins and minerals. The adequacy of the breakfast portion is better not too much because it can lead to disruption of the digestive system and activities of school children / adolescents (UNICEF, 2019).

The importance of implementing breakfast in school children, especially adolescence, in fulfilling nutritional intake during growth and transition from adolescence to adulthood, so as to produce a golden generation (Azhari & Fayasari, 2020). Therefore, it is very necessary for a literacy culture to do peer leaders with the Numbered Head Together (NHT) method using comic media.

School-age children are found to still go to school without breakfast from home, as based on data from America and Europe only about 10-30% per day, Colombo 70% and Nigeria about 52% who skip breakfast every day (Eck et al., 2019). By having breakfast, it helps in increasing the ability to focus on learning at school for both boys and girls (Muller et al., 2014).

The World Health Organization and other health agencies indicate that Thailand has made progress in addressing nutrition issues, such as: Prevalence of Malnutrition: Thailand has made progress in reducing malnutrition rates, especially PEM (Protein Energy Deficiency), but there are still some adolescents who are vulnerable to malnutrition, especially in poor and rural areas.

In addition, the problem of adolescent obesity in Thailand, like many other countries around the world. Most of the causes of adolescent obesity include food consumption that does not meet the concept of balanced nutrition, lack of physical activity, and modern lifestyles.

Nutrition education and training for students as well as education campaigns to empower the community so that adolescents can play a role in raising awareness in schools, neighborhoods and homes, about healthy eating patterns. Access to nutritious food remains a problem that needs to be addressed especially in poor and rural communities (UNICEF, 2019).

Therefore, it is very necessary to provide nutrition education and training for adolescents in lifestyle changes so that they can provide information to their environment. Where the focus of the dedication will be on adolescent junior high school students in getting used to breakfast before going to school, because junior high school students are the initial phase in the growth and development of children towards adulthood and can determine the next generation of the nation.

METHODS

Service Methodology is a design or framework used for service approaches in the implementation process from start to finish. This service method is Asset Based Community Development (ABCD). The ABCD method is a service method that focuses on the strengths and capacities of local communities. The ABCD method is sustainable development and empowerment that emerges from the community by mobilizing and utilizing local resources. Where in this service the group that will develop is students or adolescents of junior high school at Thamavitaya Mulniti School located in Yala City Center, southern Thailand with peer leaders with the Numbered Head Together (NHT) method using comic media and educational videos.

This study used a quasi-experimental design with a one-group pre-test and post-test approach to evaluate the effectiveness of nutrition education on breakfast habits using the Peer Leader approach with the Numbered Head Together (NHT) method through comic and video media. The intervention aimed to improve students' knowledge and breakfast behavior at Thamavitaya Mulniti School, Yala, Thailand.

The population in this study consisted of all female junior high school students enrolled at Thamavitaya Mulniti School in the academic year 2024/2025. A purposive sampling technique was employed to select a total of 50 students who met the following inclusion criteria Female students aged 12–15 years; Willing to participate and available during the intervention and data collection periods; Have not received similar nutrition education in the past three months.

The intervention was conducted over a period of four weeks and consisted of three core components Training of five peer leaders using the Numbered Head Together (NHT) cooperative learning strategy; Development and distribution of comic media highlighting the importance of a balanced breakfast; Use of audiovisual materials or short educational videos to support peer-led discussions. Each peer leader facilitated a small group of 8–10 students, encouraging active engagement through discussion and guided Q&A sessions following the comic and video presentations.

A structured knowledge questionnaire on the importance of breakfast was developed and validated by public health experts. The questionnaire consisted of 25 multiple-choice questions divided into three domains Understanding the nutritional content of breakfast; Health benefits of breakfast; Risks of skipping breakfast. A breakfast habit questionnaire was also administered, including a 24-hour food recall and frequency of breakfast consumption during the past week.

Data Analysis Pre-test and post-test scores were compared using paired sample t-tests to determine the effectiveness of the intervention. The significance level was set at $p < 0.05$ with a 95% confidence interval. All analyses were conducted using SPSS version 25. Informed consent was obtained from all participants and school authorities. The anonymity and confidentiality of the respondents were strictly maintained throughout the study.

RESULTS

Implementation of Peer Leader with Numbered Head Together (NHT) Method Through Comic Media and Videos on Healthy Breakfast Habits in Students

Implementation in the service process in providing nutrition education on the importance of breakfast by using peer leaders with the numbered head together (NHT) method through comic media and videos on healthy breakfast habits in junior high school students or adolescents at Thamavitya Mulniti School, in the implementation of peer leaders with the Numbered Head Together (NHT) method. With the content of educational comics as follows:



Figure 1. Educational Comic about the Importance of Breakfast

The peer leader method allows information to be more easily received by students, as they tend to be more open and comfortable learning from peers. By using Numbered Head Together (NHT), students are invited to actively discuss in small groups, which encourages participation and teamwork. Five people are chosen as leaders who will educate the students with their peers. It can be seen in the picture below:



Figure 2. *Leaders are well trained*

After the five leaders are trained using comic media, the next leader will explain the importance of breakfast to his other friends, can be seen in the picture below.



Figure 3. *Implementation of Peer Leader with NHT Method Using Comic and Video Media*

Based on the results of pre and post test research on students' knowledge about the importance of breakfast conducted before and after the intervention, it shows an increase in students' knowledge about the importance of breakfast.

Based on the results of data collection as many as 50 respondents (female students), the knowledge of respondents before and after being given training on the importance of breakfast by using peer leaders with the Numbered Head Together (NHT) method through comic media and videos on healthy breakfast habits in junior high school students or adolescents at Thamavitya Mulniti School, can be seen in the table below:

Table 1 Frequency Distribution of Students' Knowledge Before and After			
Variables		Average Score	P-value
Students' Knowledge Questionnaire	Before	17.38	0,001
	After	22.08	0,001

Based on the results of the analysis in the table above using the Paired T test, the average pre-test score is 17.38 and the average post-test score is 22.08. There is a P value (p) of 0.001 which means that using peer leaders with the numbered head together (nht) method through comic media and videos on healthy breakfast habits in junior high school students or

adolescents at Thamavitya Mulniti School can provide increased knowledge, with the level of truth used in the Paired T-test is 95% = (p) <0.05.

The results of data analysis show that the knowledge of female students with good, sufficient and insufficient categories has increased before and after attending the training, as can be seen in the table below:

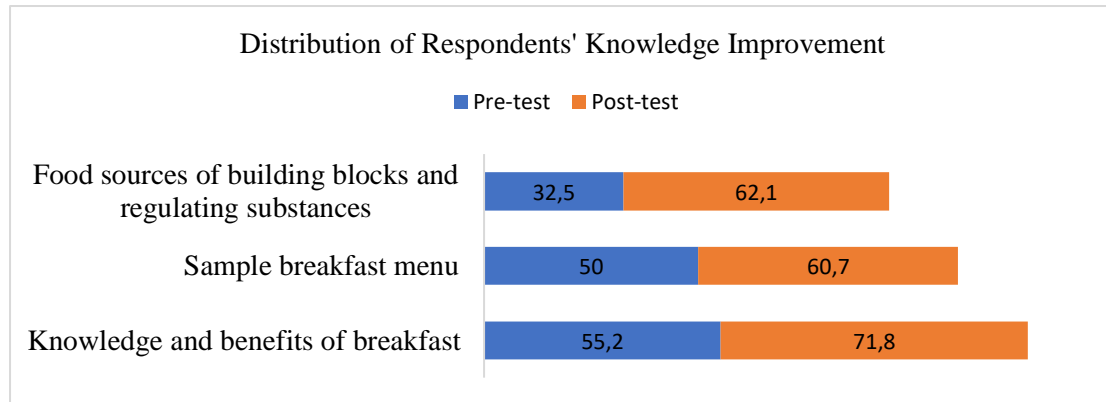


Figure 4. *Distribution of Respondents' Knowledge Improvement*

The figure above shows that all components of knowledge have increased significantly, especially in food sources of energy. Building and regulating substances.

Breakfast Habits

Based on the results of the service conducted to 50 students at Thamavitya Mulniti School, it can be seen in the table below:

Table 2 Differential Test Results Before and After Training		
Breakfast Habits	Frequency (n)	Percentage (%)
Breakfast	22	48.65
No Breakfast	28	51.35
Amount	50	100.0

**Source: Primary data*

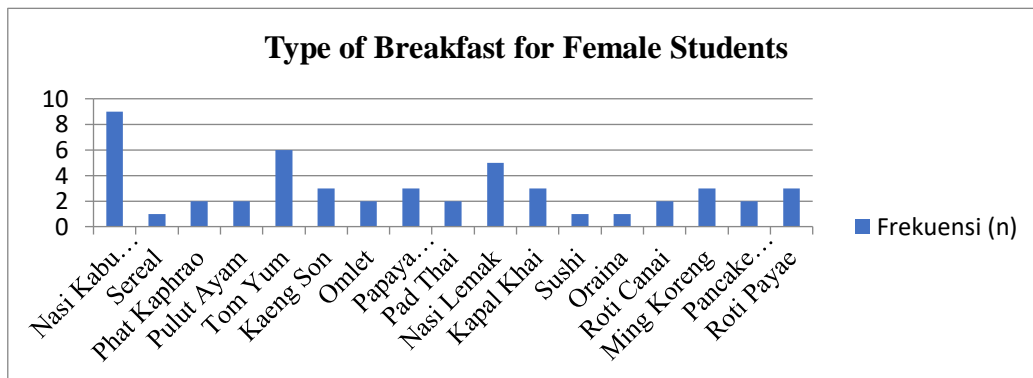
Table 2 above shows that at the time of the pretest, the level of knowledge of respondents tended to be less. At the time of the posttest, the level of knowledge of respondents tended to change towards the positive, namely the good category. Based on the results of the pre-test, the results of the questionnaire on female students for the moderate category were 37 people (74.0%), the category was lacking as many as 13 people (26.0%) and there was no good category, while the results of the post-test obtained the results of the questionnaire on teachers for the good category were 39 people (76.9%) and for the moderate category 11 people (23.1%) and no one was in the poor category. The distribution of increased knowledge in respondents can be seen in the table below:

Table 3 Frequency Distribution of Breakfast Habits

Knowledges	Pre-test		Post-test	
	N	%	N	%
Good	0	0	39	76.9
Enough	37	74.0	11	23.1
Less	13	26.0	0	0.0

**Source: Primary data*

Based on the table above, it is known that almost all students do not have breakfast from home as many as 22 people (48.65%) and who have breakfast as many as 28 people (51.35%). With the following types of breakfast:



Survey of Respondents' Breakfast Consumption

a. Carbohydrate Consumption Habits

Based on the results of the answers of 50 respondents who can be known carbohydrate consumption habits in the previous 24 hours, carbohydrates are divided into two categories, namely more if carbohydrate consumption $> 60\%$ of total consumption and sufficient if carbohydrate consumption $\leq 60\%$ of total consumption, can be seen in the graph below:

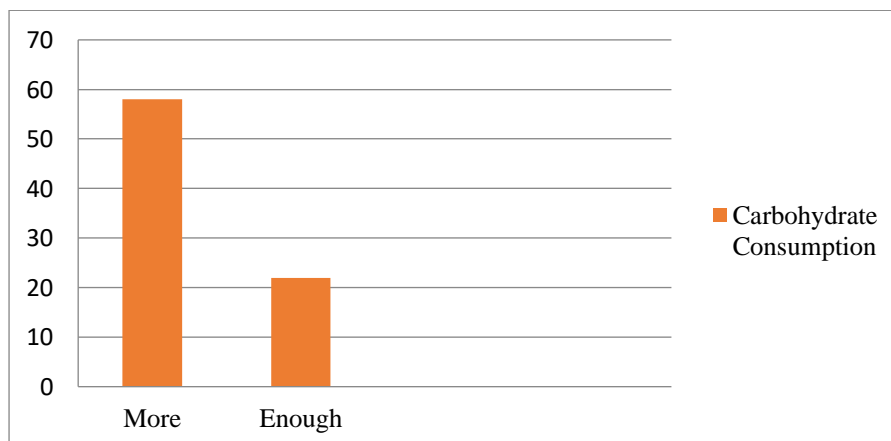


Figure 6. Total Carbohydrate Consumption

The results of data analysis showed that respondents who had more carbohydrate consumption habits were 38 people (76%), while the sufficient category was 12 people (24%).

b. Protein Consumption Habits

Based on the results of the answers of first, second and third grade elementary school children respondents, it can be seen that protein consumption habits in the previous 24 hours, protein consumption is divided into two categories, namely more if protein consumption $< 15\%$ of total consumption and less if protein consumption $\geq 15\%$, can be seen in the graph below:

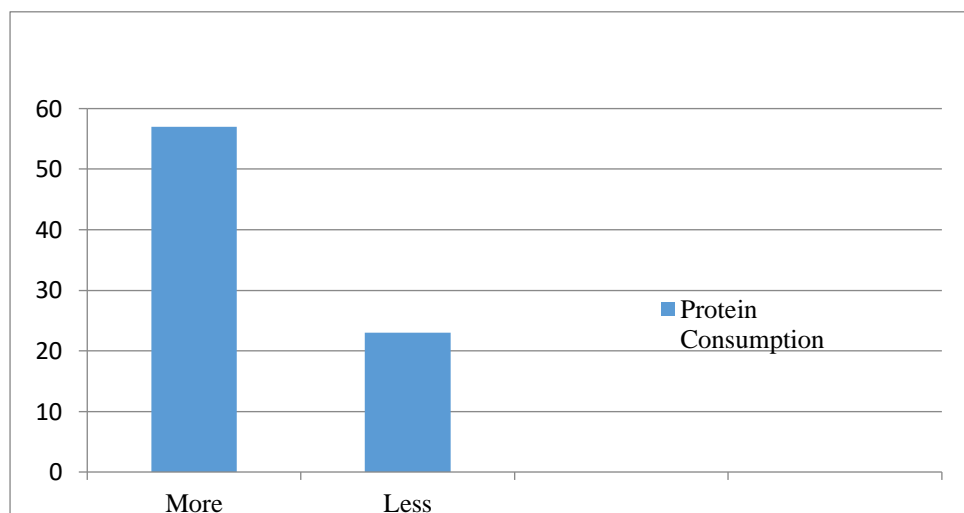


Figure 7. Total Protein Consumption

The results of data analysis show that most respondents have protein consumption habits $< 15\%$ of total energy, namely 37 people (74%), while as many as 13 people (26%) have less protein consumption habits.

c. Fat Consumption Habits

Based on the results of the answers of first, second and third grade elementary school children respondents, it can be seen that fat consumption habits in the previous 24 hours, fat consumption is divided into two categories, namely more if fat consumption $> 25\%$ of total consumption and sufficient if fat consumption $\leq 25\%$, can be seen in the graph below:

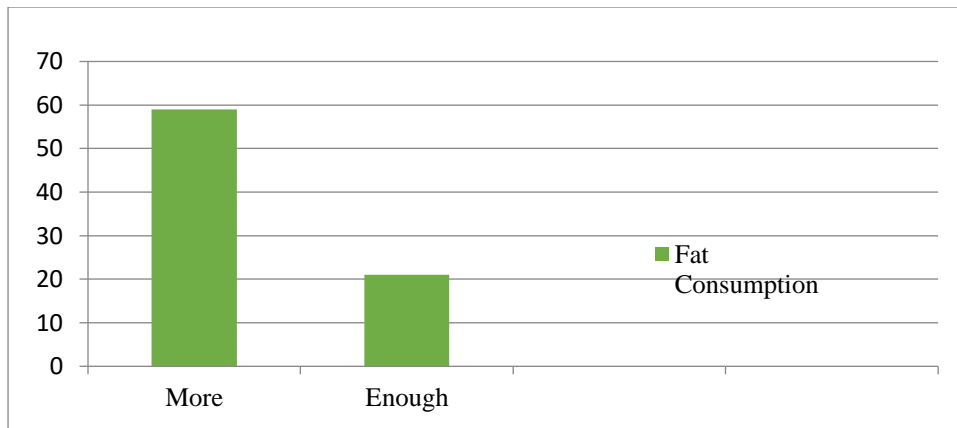


Figure 8. Total Fat Consumption

The results of data analysis showed that most respondents had fat consumption habits $\geq 25\%$ of total energy, namely 39 people (77%), while as many as 11 people (16%) had moderate fat consumption habits.

d. Fast/Junk Food Consumption Habits

Based on the results of the answers of first, second and third grade elementary school children respondents, it can be seen that fast / junk food consumption habits are divided into two categories, namely often if ≥ 2 times a week and rarely if < 2 times a week, can be seen in the graph below:

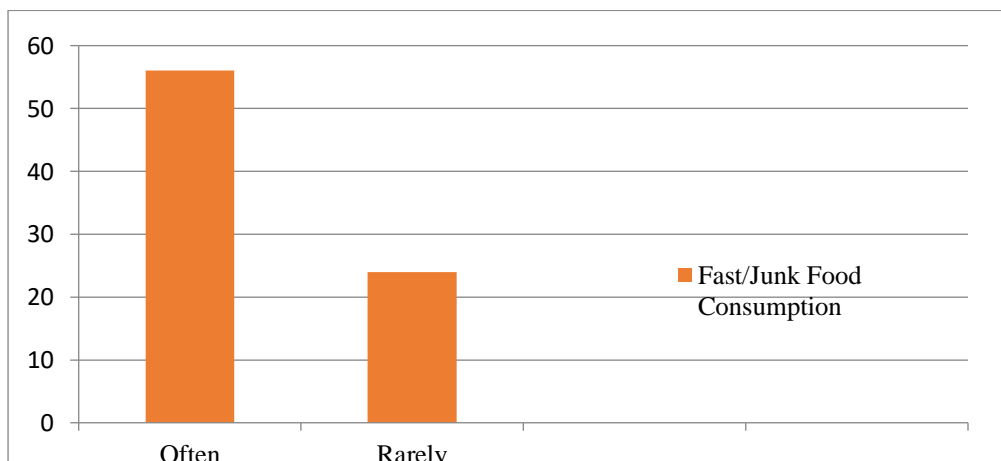


Figure 9. Total Fast/Junk Food Consumption

The results of data analysis show that most respondents have fast / junk food consumption habits in the frequent category, namely 36 people (73%), while as many as 14 people (27%) have fast / junk food consumption habits in the rare category.

DISCUSSION

Increased Knowledge on the Importance of Breakfast

Based on the results of pre and post test research on students' knowledge about the importance of breakfast conducted before and after the intervention, there was an increase in students' knowledge about the importance of breakfast. Most students initially did not realize the importance of breakfast for health, learning concentration, and body energy.

Health education for adolescents can help improve their knowledge, which is key to successful treatment, appropriate learning media and methods support good health education. The presence of class leaders and the school environment can help maintain children's health. Group process, health education, and cooperation are nursing intervention strategies for community nursing care, adolescent Health Cadres are also involved in School Health Business Activities.

Education through comic media has been proven to be more effective because attractive visuals can make students more interested and easier to understand information. According to the International Food Information Council Foundation, adolescents often face time constraints in the morning due to busy schedules, which reduces their opportunity to prepare breakfast. Economic factors also contribute to the decision not to consume this meal (Yulia, 2024). School-aged children are an important demographic group in terms of nutritional health due to a variety of influencing factors. The nutritional status of these children depends on the quality and adequacy of their food consumption. Breakfast is essential for children to start their daily activities after fasting overnight for 8 to 10 hours.

According to Wijayanto, as referenced in Nurahmadi & Dalimunthe (2024), there is a significant correlation between nutritional status, breakfast habits, and academic achievement. A contributing factor to breakfast skipping behavior in children is their limited understanding of nutrition principles. This lack of knowledge can hinder their ability to make the right choices in their daily activities. Therefore, nutrition education should be introduced from an early age, as students generally show a strong desire to learn and deepen their understanding. Utilizing various educational media, such as visual, audio, or audiovisual, can effectively convey the importance of breakfast and increase students' knowledge and awareness of its benefits (Nurahmadi & Dalimunthe, 2024).

Breakfast is the initial intake of nutrients after a period of fasting overnight while sleeping. Breakfast consumption is essential to replenish the brain's nutrient supply. An optimal breakfast is expected to fulfill at least 25% of a person's daily nutritional needs and should consist of a balanced mix of carbohydrates, proteins, vitamins and minerals. This nutritional

composition helps the digestive process, increases energy levels, and improves concentration and memory (Sagala et al., 2023). This research is in line with that conducted by Alfarisi et al., as cited in Nurahmadi & Dalimunthe (2024), revealing that school-age children often do not consume breakfast due to limited morning time to carry out activities such as preparation for school, unfinished homework, and extracurricular commitments. As a result, many students choose to delay breakfast in favor of completing assignments or because it is considered urgent. In addition, the belief in adolescents that skipping breakfast can help them lose weight often leads to neglecting breakfast (Mawarni, 2021). This behavior can be bad for health, as it can interfere with students' ability to concentrate adequately during learning activities, hindering the learning process (Munif, 2021).

The physical impacts of skipping breakfast can include central nervous system imbalances, characterized by symptoms such as dizziness, shakiness, fatigue, and sleepiness (Bahar et al., 2023). Furthermore, consistently avoiding breakfast can result in serious health consequences, including decreased cognitive function stemming from low blood glucose levels, which serves as the main source of energy for the body, ultimately resulting in suboptimal academic performance among school children (Nurahmadi & Dalimunthe, 2024).

The overnight fasting period necessitates morning nutrient intake, and the practice of breakfast is integral to restoring the body's glucose levels, which are closely related to glucose metabolism. Glucose is the only active energy source for the central nervous system, and its uptake is facilitated by protein and energy transport mechanisms. As a result, insufficient protein intake can disrupt glucose transport, impairing brain nutrition and thus compromising focus and concentration during learning activities, as noted by Verdia in the cited study (Yulia, 2024).

Effectiveness of Peer Leader and NHT Methods

The peer leader method allows information to be more easily received by students, as they tend to be more open and comfortable learning from peers.

By using Numbered Head Together (NHT), students are invited to actively discuss in small groups, which encourages participation and teamwork. This method is also effective in improving understanding because students take turns conveying the knowledge they have gained. NHT activities encourage students to be more active in conveying ideas and opinions, so that the material about the importance of breakfast can be internalized better. The use of media in this service is used to convey messages about breakfast with an attractive appearance so that students can be motivated to learn and apply these messages in everyday life, this is in accordance with the results conducted by Okta (2017) on the benefits of using media in

providing information through peer education, so as to increase interest and willingness to change behavior and increase student motivation. It is not uncommon for information conveyed through audio-visual media to stimulate teenagers to change behavior.

Improved Breakfast Habits

After the program, there were positive changes in students' breakfast habits. Data from the evaluation results show an increase in the percentage of students who regularly eat breakfast every day. Students became more aware of a healthy, balanced, and nutritious breakfast menu after receiving education through comic media.

Thailand utilizes food as a medium to enhance the nation's image and attract tourists. An important aspect of local culinary wisdom is the emphasis on fresh, locally sourced ingredients in cooking practices. Thai people have a long-standing tradition of utilizing natural resources available in their environment, including vegetables, herbs and other indigenous food products. This practice not only promotes environmental sustainability but also reinforces Thailand's rich and diverse culinary identity (Priandana et al., 2023). For example, the incorporation of ingredients such as chili peppers, lemongrass and lime leaves in Thai dishes is indicative of adaptation to local climate and soil conditions, as well as traditional knowledge that has been preserved for centuries (Arini, 2021).

In addition, local wisdom is manifested in the methods used by Thais in the preparation and presentation of food. Culinary traditions involving specific techniques such as steaming, frying and boiling not only produce distinctive flavors but also encapsulate the social and cultural values underlying these practices. For example, the custom of serving food in small portions to share with family members or friends reflects the values of togetherness and communal solidarity prevalent in many Thai cultures (Rizki dkk., 2023). To ensure the preservation of local culinary wisdom, it is imperative to engage the younger generation in education and training initiatives aimed at enhancing their understanding and appreciation of their culinary heritage.

Research shows that passing on traditional knowledge and cooking techniques across generations is critical to the sustainability of local food wisdom, which includes traditional culinary practices and sustainable agricultural methodologies. This approach ensures that local food wisdom is not just a cultural heritage but can also contribute significantly to future food security and sustainability (Hidayat dkk., 2023).

CONCLUSIONS

The use of Peer Leader with Numbered Head Together (NTH) method using comics and video media is very effective in increasing respondents' knowledge by 79.6%. The variety of food in Thailand can fulfill the needs of respondents from the elements of carbohydrates, protein, vitamins and minerals consumed by students at breakfast.

Recommendations of Program that can be carried out by schools, namely reactivating school health cadres to make information about the importance of breakfast.

It is expected that the school Thamavitya Mulniti School Yala Thailand makes a policy for students to bring lunch from home so that indirectly students' breakfast consumption can be monitored and directed in accordance with balanced nutritional guidelines.

REFERENCE

- Arini, W. , S. V. R. , R. H. (2021). Pemanfaatan Tumbuhan Lokal secara Tradisional dalam Peningkatan Ketahanan Pangan oleh Suku Dayak Iban di Desa Mensiau, Kalimantan Barat. *Biotropika: Journal of Tropical Biology*, 9(1), 38–45.
- Azhari, M. A., & Fayasari, A. (2020). Pengaruh edukasi gizi dengan media ceramah dan video animasi terhadap pengetahuan sikap dan perilaku sarapan serta konsumsi sayur buah. *AcTion: Aceh Nutrition Journal*, 5(1), 55. <https://doi.org/10.30867/action.v5i1.203>
- Bahar, H. , Effendy, D. S. , Lestari, H. , & Tosepu, R. (2023). Edukasi Program PESPA (Pentingnya Sarapan Pagi) Bagi Kesehatan Pada Siswa Siswi SMPN 15 Kota Kendari Sulawesi Tenggara. *Jurnal Dedikatif Kesehatan Masyarakat*, 3(2), 23–28. <https://doi.org/10.22487/dedikatifkesmas.v3i2.607>
- Eck, K. M., Delaney, C. L., Clark, R. L., Leary, M. P., Shelnutt, K. P., Olfert, M. D., & Byrd-Bredbenner, C. (2019). The “motor of the day”: Parent and school-age children’s cognitions, barriers, and supports for breakfast. *International Journal of Environmental Research and Public Health*, 16(18). <https://doi.org/10.3390/ijerph16183238>
- Haeriyah, S., Ayuningtyas, N., Marsepa, E., & Faidatusyarifah, F. (2022). Edukasi Pentingnya Sarapan Pagi Pada Remaja. *JMM (Jurnal Masyarakat Mandiri)*, 6(6), 5023. <https://doi.org/10.31764/jmm.v6i6.11643>
- Hidayat, B. A., Faturohim, A., & Akbar, A. (2023). Kearifan Lokal “Segelurung” Sebagai Inovasi Untuk Mendukung Kebijakan Ketahanan Pangan Di Pedesaan. *Jurnal Kebijakan Perikanan Indonesia*, 15(2), 93–103.
- Mawarni, E. (2021). Hubungan Sarapan Pagi Dengan Konsentrasi Siswa. *Jurnal Kesehatan Tambusai*, 2(4), 159–167.
- Muller, K. W., Schwanda, S., Scholz, E., Spitzer, M., & Bode, H. (2014). Effect of supplementation with long-chain ω -3 polyunsaturated fatty acids on behavior and cognition in children with attention deficit/hyperactivity disorder (ADHD): a randomized placebo-controlled intervention trial. *Prostaglandins Leukot Essent Fatty Acids*, 91(1–2), 49–60.
- Munif, A. (2021). Perbedaan Konsentrasi Siswa Yang Sarapan Dengan Siswa Yang Tidak Sarapan di Sekolah Dasar Negeri Bulay 2 Kecamatan Galis Pamekasan Tahun 2017. *Jurnal Kedokteran Anatomi*, 4(3), 138–145.
- Nurahmadi, R., & Dalimunthe, N. K. (2024). Pengaruh Edukasi Gizi Melalui Media Pop-Up Book Terhadap Pengetahuan Gizi Dan Kebiasaan Makan Pagi Siswa Sekolah Dasar

- Negeri 3 Tiuh Memon. *Journal of Nutrition College*, 13(3), 210–219. <http://ejournal3.undip.ac.id/index.php/jnc/>
- Priandana, A. A., Yuhyil, D. M., Maulida, I. A., & Apriyanto, B. (2023). Konsep Ketahanan Pangan Berbasis Kearifan Lokal: Studi Kasus Kampung Naga. *MAJALAH PEMBELAJARAN GEOGRAFI*, 6(1), 105. <https://doi.org/10.19184/pgeo.v6i1.36414>
- Rizki, V. A., Sarwadhamana, R. J., & Putri, I. R. R. (2023). Pengembangan Potensi Pangan Lokal di Kecamatan Candimulyo Magelang. *Jurnal Masyarakat Madani Indonesia*, 2(2), 92–97. <https://doi.org/10.59025/js.v2i1.80>
- Sagala, N. S. , Simamora, A. A. , Nasution, N. A. , Andela, V. , Yani, R. I. , & Simbolon, A. B. (2023). Penyuluhan Pentingnya Sarapan Pagi Bagi Para Anak Sekolah Di Smp N 1 Padangsidempuan Tahun 2023. *Jurnal Pengabdian Masyarakat Aufa (JPMA)*, 2023(3), 135–138.
- UNICEF. (2019). *State of the World's Children 2019: Children, Food, and Nutrition*.
- World Health Organization. (2019). *Nutrition Landscape Information System (NLIS) Interpretation Guide 2ND EDITION*.
- Yulia, S. A. (2024). Hubungan Kebiasaan Sarapan Pagi Dengan Konsentrasi Belajar Pada Anak Sekolah Dasar : Literature Review. *SEHAT: Jurnal Kesehatan Terpadu*, 3(1), 22–30.