

## THE INFLUENCE OF BREAKFAST ON THE ABILITY OF STUDENTS' LEARNING CONCENTRATION IN JUNIOR HIGH SCHOOL INTEGRATED SUSTAINABILITY MODEL IN PALU

*(PENGARUH SARAPAN PAGI TERHADAP KEUPAYAAN PENUMPUAN PEMBELAJARAN PELAJAR DALAM MODEL KEMAPANAN BERSEPADU SEKOLAH MENENGAH RENDAH DI PALU)*

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### Abstract

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Breakfast has an important role in meeting the nutritional needs of students. Balanced nutrient intake at breakfast can support student learning activities. The aim of this study is to determine the influence of breakfast on the ability of students learning concentration in junior high school Integrated Sustainability Model in Palu. This research method used analytic observational design with cross sectional approach. The sample was collected using accidental sampling technique method; with the total number of samples obtained were 93 respondents. Each respondent is given a questionnaire about breakfast, and then given a problem by the class teacher to assess the concentration of learning. The results obtained were analyzed using chi-square test. This study indicates a significant difference ( $P = 0,005$ ) between the breakfast group and those who did not eat breakfast on the concentration of learning in junior high school students of Integrated Sustainability Model in Palu. Intake of morning breakfast nutrition can improve student's concentration of learning ability to be better than group that does not breakfast in junior high school students of Integrated Sustainability Model in Palu.

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**Keyword:** Nutrition, Breakfast, Learning Concentration

### Abstrak

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Sarapan pagi mempunyai peranan penting dalam memenuhi keperluan pemakanan pelajar. Pengambilan nutrien yang seimbang semasa sarapan boleh menyokong aktiviti pembelajaran pelajar. Kajian ini bertujuan untuk mengenalpasti pengaruh sarapan pagi keupayaan penumpuan pembelajaran pelajar Sekolah Menengah Rendah di Palu. Kaedah kajian ini menggunakan rekabentuk pemerhatian analitik dengan pendekatan keratan rentas. Sampel dikumpulkan menggunakan kaedah teknik pensampelan tidak sengaja; dengan jumlah sampel yang diperolehi adalah 93 responden. Setiap responden diberi soal selidik mengenai sarapan pagi, dan kemudian diberi masalah oleh guru kelas untuk menilai penumpuan pembelajaran. Keputusan yang diperolehi dianalisis menggunakan ujian chi-square. Kajian ini menunjukkan perbezaan yang ketara ( $P = 0.005$ ) di antara kumpulan yang bersarapan pagi dan kumpulan yang tidak makan sarapan pagi dengan penumpuan pembelajaran pelajar Sekolah Menengah Rendah dengan Model Kemapanan Terintegrasi di

*Palu. Pengambilan pemakanan sarapan pagi boleh meningkatkan keupayaan penumpuan pembelajaran pelajar untuk menjadi lebih baik daripada kumpulan yang tidak sarapan pagi di pelajar Sekolah Menengah Rendah dengan Model Kemampunan Terintegrasi di Palu.*

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**Kata kunci:** *Pemakanan, Sarapan, Penumpuan Pembelajaran.*

## INTRODUCTION

Concentration is important for every individual, especially the learner. Concentration is an ability to focus thoughts, feelings, wills and all five senses to one object in a particular activity, accompanied by an attempt to disregard other objects that have nothing to do with that activity. Research shows that students who breakfast regularly only 60% (Lanega, 2015).

Therefore, learning requires concentration in the embodiment of centralized attention. Concentration focuses on a particular object ignoring other unnecessary problems. People who cannot concentrate clearly will not succeed in storing or mastering the subject matter. Each student strives hard to have a high concentration in learning. Tasks requiring attention, executive function, and memory were facilitated more reliably by breakfast consumption relative to fasting, with effects more apparent in undernourished children (Arifin, 2015; Adolphus et. al., 2016).

According to the study, skipping breakfast time means delayed intake of nutrients (sugar intake into blood cells). Reduced intake of glucose in the brain will decrease the concentration of student learning. This is because the condition of hypoglycemia or blood glucose level is less than normal, can decrease the concentration of children while learning due to laziness, weakness, lethargy, dizziness, and drowsiness that later can cause anemia in children (Murray et. al., 2009; Sofanita & Meiyettri, 2015).

Breakfast is the first food menu a person consumes. Usually people eat dinner around 19:00 and eat again the next morning at 06:00. Means for about 10-12 hours they fast. With the fasting, the blood sugar (glucose) reserves in a person's body are only enough for two to three hours of activity in the morning. Normal glucose levels are between 70 to 110 mg / dl (Lanega, 2015; Murray et. al., 2009).

After nearly eight to ten hours of digestive tract rest during sleep, the body needs food intake to support energy for activity and concentration of learning. Breakfast is very important given to children at school age, therefore parents should always give and also get the child to breakfast every morning. Because with breakfast many benefits that we can get and can train the child to discipline. Breakfast may sound trivial, but very vital for our bodies, especially when required to move all day (Depkes, 2011).

For everyone including school children, breakfast is a source of energy before leaving for school and is necessary for activities and learning at school. With breakfast, the stomach will be replenished after 8-10 hours, so that blood sugar levels rise again. This situation has to do with the work of the brain, especially the concentration of learning in the morning (Murray et. al., 2009; Sofanita&Meiyettri, 2015).

Therefore, the researcher wanted to study about the influence of healthy breakfast at high junior students of Integrated Sustainability Model, to the ability of study concentration in mathematics subjects compared with students who did not breakfast.

## METHODS

The type of research used is observational analytic research and using cross sectional approach. This research was conducted at junior high school Integrated Sustainability Model in Palu on February 23, 2018. Sampling method was done by accidental sampling technique, with attention to inclusion and exclusion criteria so that 93 respondents were obtained. The instrument used in this study is a questionnaire to assess breakfast and quiz / exercise questions to assess the concentration of learning assessed based on the scores given by teachers. The range of score 73-100 is good and less than 73 is bad. The data obtained then processed using SPSS with chi-square test.

## RESULTS

This research was conducted on 8th grade students in junior high school, Palu City, on 23 - 26 February 2018. The population in this research is 8th grade students in junior high school Integrated Sustainability Model in Palu, that is 121 people. Of the population obtained a minimum sample of 93 people from 3 classes.

Table 1. Distribution of breakfast and non-breakfast students and their learning concentration

Parameter	Number of samples (n)	Percentage (%)
Breakfast		
Breakfast	49	52.7
Not Breakfast	44	47.3
Concentration		
Good	29	31.2
Bad	64	68.8

Sources: Primary Data, 2018.

Based on Table 1 above, it shows that from 93 respondents who distributed questionnaires, most of the respondents who had breakfast were 49 (52.7%) students and students who did not breakfast that is 44 (47.3%), and the most respondent concentration (value) is good as much as 29 (31.2%) student and respondent which concentration (value) bad that is counted 64 (68.8%).

Then, the results of chi-square statistical tests used to determine differences in student learning concentration of breakfast and not breakfast are shown in table 2 below:

Table 2. Data Analysis difference in the ability of learning concentration among students who breakfast and who do not breakfast

Breakfast	Concentration		P
	Good	Bad	
Breakfast	22	27	0.005
Not Breakfast	7	37	

(*P = Chi Square Test*)

Based on the data in Table 2, it is found that the number of students who have a breakfast with a concentration of good learning value (73-100) as many as 22 students, and students who do not breakfast with good concentration of only 7 students and who have poor concentration (score less than 73) is as many as 37 students.

P value from the results of statistical test chi square obtained value  $P = 0.005$  ( $P < 0.05$ ) it can be concluded that there is a difference between the ability of student learning concentration of breakfast and not breakfast.

## DISCUSSION

This study aims to determine the difference in the ability of students' learning concentration that breakfast and who do not breakfast at junior high school that seen from the value of data taken

comes from the primary data in the form of questionnaires and quizzes/ exercise questions. From the data of 93 samples fulfilling the inclusion criteria, then the results of the questionnaire were entered into the SPSS program for further processing.

The statistical test used to determine the difference in students' learning concentration ability that breakfast and not breakfast at junior high school students is chi square correlation test. Based on the test obtained that the value of  $p < 0.05$  is 0.005 which means that there are differences in the ability of students' learning concentration of breakfast and not breakfast. Therefore, the working hypothesis in this study is H0 rejected and H1 accepted.

The results of this study found that most respondents are breakfast that is as much as 49 (52.7%) students and students who do not breakfast that is as much as 44 (47.3%). Then respondents with good concentration of 29 (31.2%) and respondents with poor concentration of 64 (68.8%) and the number of 8th grade junior high school students with concentration (good learning value) were 22 students, students who had breakfast with poor concentration (learning grade) were 27 students, breakfast with a good concentration of 7 students and students who do not breakfast poor concentration of 37 students.

The results are in accordance with research conducted by Annas M (2011). In his research argued that the activity of breakfast indirectly can affect student achievement. This is because there are two benefits that can be taken when students do breakfast. First, breakfast can provide ready-to-use carbohydrates to boost blood sugar levels. With normal blood sugar levels, the passion and concentration of work can be better so that a positive impact to improve learning achievement. Second, basically breakfast will make an important contribution to some of the nutrients needed by the body such as proteins, fats, vitamins and minerals. The availability of this nutrient for the functioning of biological processes in the body (Annas, 2011).

Nutrients contained in the breakfast menu such as carbohydrates, proteins, and other nutrients especially iron, in the metabolism of the body play a role in the thinking process or reasoning process and the power of concentration and are closely related to the efficiency of learning. With a good state of nutrition is expected to impact on good learning achievement as well (Sa'ada, Herman & Sastri, 2014).

In this study also showed that students who eat breakfast with poor concentration (value of learning) as many as 27 students. This is because according to the study, in addition to breakfast there are other factors that affect the concentration of student learning. External factors such as fatigue and interest in learning. Factors of fatigue and lack of learning interest, will cause students cannot concentrate well. Factors that affect concentration are social factors that include teachers, parents and friends. Non-social factors that include environment practice, learning methods, facilities and infrastructure, as well as language and culture. Psychological factors include talent, interest, memory, and motivation. The next factors are nutritional status including breakfast habits, family eating consumption patterns, family food supplies, family income, and nutrients in food (Tamsuri & Ajeng, 2012).

In general, the reason that students do not eat breakfast is to fear school late. This will affect the desire to have breakfast. In addition, the lack of a level of breakfast consumption is also influenced by economic factors. Communities that are mostly middle to low-income economies find it difficult to meet the recommended nutritional adequacy rates because they cannot afford them. Besides, both working parents will make the children's diet neglected, plus the understanding that if breakfast too much causes sleepiness and obesity, fear of late school (Tumiwa, Sarimin & Ismanto, 2016).

Other factors that cause breakfast activities are rarely done is because of late waking up so that no breakfast time or it could be from the parents who did not have time to provide breakfast for children before going to school. This is in accordance with the theory that the famine when in schools will cause children to take snacks at school, especially only about 5% of the children bring

supplies from home, so the possibility to buy food snacks higher. Indonesia's drug and feeding agency in 2009 in School Food Snack Food shows that snack foods contribute 31.1%, and 27.4%, respectively, to the overall energy and protein intake of school children (Edefonti, Bravi&Ferraroni, 2017).

Breakfast is generally accepted to be the most important meal of the day. It is purported to confer a number of benefits for quality of diet, health, and cognitive and academic performance. Children and adolescents who habitually consume breakfast are more likely to have better micro- and macronutrient intake, less likely to be overweight or obese, and more likely to have higher physical activity levels (Mariza & Kusumastuti, 2013).

Adolpous et al. 2016 presented review indicates that breakfast consumption has a transient beneficial effect on cognitive function measured within 4 H post ingestion compared with breakfast omission. There was also some evidence that the advantageous effects cognition of breakfast compared with fasting may be more apparent in undernourished children (Adolphus, Lawton & Dye, 2016).

In this study the concentration of learning is assessed using the learning outcomes in the interests of mathematics. According to the theory that in the field of mathematical study, one's interest in learning can be seen from the tendency to give greater attention to the lesson. When a person has a great interest in the subject of mathematics, the value of his learning results tends to change in a better direction. Great interest in something is a big capital means to achieve or obtain objects or goals of interest. The incidence of interest in learning due to various things, among others because of a strong desire to get a good job and want to live happy (Siagian, 2013).

External factors also affect the success or failure of students in teaching and learning process, one of which is the family environment. The family environment is the first and foremost influence on one's life, growth, and development. A lot of time and opportunities for children to meet and interact with family. Such encounters and interactions have tremendous influence on one's behavior, achievement, and concentration (Yonitasari & Setiyani, 2014).

## CONCLUSION

Intake of morning breakfast nutrition can improve student's concentration of learning ability to be better than group that do not breakfast at 8<sup>th</sup> grade junior high school students of Integrated Sustainability Model in Palu.

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