Correlation of Breakfast Nutrition and Concentration with Study Motivation of PG PAUD College Students

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Abstract: A factor that influences learning outcome is motivation. Several factors can impact student motivation to learn, one of them is breakfast nutrition and student concentration. The research method used is quantitative correlation type. Data collection techniques for the three variables were carried out using a questionnaire via google form. Results of this study show that there is a relationship between breakfast nutrition, concentration on learning motivation of PG PAUD students can be accepted. Conclusions from this study are nutrition breakfast and the level of learning concentration is positively correlated with student learning motivation compared to those who rarely or never do breakfast.

Keywords: Breakfast Nutrition; Learning Concentration; Learning Motivation

INTRODUCTION

Learning motivation is a very important aspect of the learning process. In studying, motivation is needed (Sitohang et al., 2023). High motivation is essential in learning (Upoyo & Sumarwati, 2011). The more appropriate the motivator, the more success the course will have. In the beginning, students have no desire to learn, but because there is something to look for, there is an interest in learning. It is consistent with his or her sense curiosity which in turn motivates them towards learning. Ultimately, this attitude underlies and pushes towards some action to learn. Therefore, motivation that functions as a driving force influences what attitude a student must takes in the context of learning (Sitohang et al., 2023). Student motivation is influenced by teachers' teaching strategies. When teachers can adapt their strategies to student study skills, they will create favorable condition for student motivations and learning outcomes. Concrete examples are students' needs for obvious structures in teaching, which are not always in line with teachers' perceptions. Secondly the student showed an obvious needs external structures in order to be able performing well. The student is highly motivation when receiving clearly defined frames, instructions, schedules, concrete examples, and organized follow-up so as to achieve the learning objectives (Boström & Bostedt, 2020). A successful lesson objective could be viewed from the student's output or learning outcomes. A factor that influences student outcomes is motivation to learn. Many factors that can affect learning motivation are narrowed down to 2 factors, which are internal factor and external factor (Yang & Rahmawati, 2016).

Factors internal to motivation included, 1) Internal factors, which is a factor coming form inside the individual, consisting of a need, either psychological or physical need, an individual's perspective on himself that will drive and direct a person's action behavior, self-worth and achievements, goals and hopes for the

future, the will to progress, interest and achievement performance satisfaction. 2) External factors, namely a factor coming form external to the individual, consisting of rewards, competition, punishment, compliments, received rewards and environmental situations generally (Rubiana & Dadi, 2020) (Pranitasari & Maulana, 2022) (Wardani et al., 2020) (Yang & Rahmawati, 2016) (Upoyo & Sumarwati, 2011). The most important function of motivation is as a driver of activity, as a director, and as a driver in achieving a good result. Motivation to learn can be interpreted as a motivating power for carrying out specific learning techniques from within and outside an individual to foster a spirit of learning (Suwandi & Romli, 2023). In accordance with the previous definition of internal factors, one of the internal factors that is thought to influence is the nutritional factor of breakfast and student concentration.

Nutritional factors are one of the external factors besides the learning environment that affect the quality of memorization. Adequate levels and quality of nutrition can affect cognitive function at various stages of life. Foods rich in antioxidants, long-chain fatty acids, and other important vitamins support brain function. In line with this, research results also show that consumption of nutritious food correlates with good cognitive function (Sholichah, 2021). Nutrition is a description of the quantity and quality of nutrient intake of food consumed and the body's ability to optimize. A person with poor nutritional status will affect the child's success in the academic field, which has an impact on learning concentration due to decreased attention in class, low memory and lack of motivation to learn so it can be said that nutritional status contributes to learning motivation (Ali, 2011) (Lestari et al., 2022) (Afrilia et al., 2022a). Adequate and balanced nutrient intake contributes to achieving or maintaining good health. Adequate nutrient intake aims to promote healthy growth and development. A regular diet is an essential factor in maintaining the physiological balance of the body for any age-group. Therefore, breakfast also needs to be done regularly so that the metabolism in the body can run optimally. Energy provided by eating breakfast is utilized by the body to enhance learning processes (Handini, 2021). So, breakfast nutrition is important because it contains the hormone serotonin.

The hormone serotonin (also known as 5-hydroxytryptamien or 5-HT) is a chemical compound that functions as a neurotransmitter from one part of the brain to another. Serotonin also plays an important role in memory storage. Serotonin regulates mood, pain, sleep, appetite, muscle contraction, sexual behavior, heart regulation and several cognitive functions including memory. The most important memory in everyday life is declarative memory which contains information about personal experiences, general facts, and events (Anggraini, 2023). Skipping breakfast not only makes us hungrier, but also gives rise to anxiety and restlessness. Breakfast is the solution, such as foods that are high in fiber and protein with little fat. Foods high in fiber not only affect concentration levels, but can also keep one feeling full until lunchtime and not everyone is used to breakfast (Ginka et al., 2023). You may also lose concentration and focus in your daily activities. This is caused by high levels of the hormone cortisol. This hormone is responsible for helping to process sugar and fat into energy. The energy used comes from the calorie reserves stored in the body, if the energy reserves in the body run out, the supply to the brain will be reduced, making the body weak, dizzy head, cold sweat, not even fainting due to lack of energy. In addition, memory and thinking will also be reduced, this results in the ability to work the brain getting weaker in everyday activities. For this reason, sufficient energy is needed as fuel for the brain to work (Lestari et al., 2022).

In fact, lecture activities are busy especially if there is a lecture schedule in the morning and make students rush so they don't have time to have breakfast. This often happens so that it makes students do brunch habits, namely the habit of combining breakfast time with lunch which can have a bad effect. This problem is often experienced by students. The tight schedule of classes and demands from universities and parents sometimes make students have to study hard until the night and wake up late in the morning so that they rush and

do not have breakfast (Ola & Kumala, 2023). The social life of students greatly influences their healthy living behavior, especially the habit of having breakfast every day, but there are still students who do not regularly have breakfast. The problem with students who do not regularly have breakfast is that they live outside the city and boarding houses around the campus, so they have to prepare their own food, or they have to look for food stalls for breakfast, while the morning lecture schedule makes them hurry and finally they have to postpone breakfast. Another case with students who live in their own homes, most of them more often do breakfast because their parents have provided food for breakfast (Putra et al., 2018a).

It is supported by previous studies, that the following (Basri et al., 2022) stated that students who can maintain their concentration and motivation well, then students can understand the material in teaching and learning activities well. If the learning motivation is high, then the learning efforts made are also more active and more concentrated. With more active learning efforts, high learning achievement results will be obtained. So, getting good motivation of students to learn, getting good concentration of students to learn. Then, according to (Rima et al., 2020) stated that eating breakfast is very important because it can improve learning concentration and make it easier to absorb lessons, thus improving learning achievement. Cognitive and academic performance are influenced by several factors, including indicators of school quality (such as facilities, teacher quality), and individual characteristics (such as aptitude, motivation, and behavior). These have been known to have interrelated effects. The quality of breakfast can be seen from several factors including the breakfast that contributes as energy. Given the importance of breakfast, students are expected to be more diligent in eating breakfast in order to improve learning concentration as well as links to health (Al-Faida, 2021). Children who are not accustomed to having breakfast can have negative consequences, such as being weak, sleepy, decreased desire to learn and very low response ability due to an empty stomach. An empty stomach causes the body to lack nutrients and metabolic disorders so that blood sugar levels become low. Excessive breakfast portions and making children too full are also unhealthy habits because they can cause drowsiness so they are not focused. Children who skip breakfast or just eat breakfast have a weak physical condition. Therefore, the nutrients consumed must be sufficient. If the body lacks nutrients, it causes lethargy, fatigue, hunger and decreased focus (Verdiana & Muniroh, 2018).

Undergraduate students are a transition phase between adolescence and adulthood who have quite dense activities, especially for academic activities that require high concentration. These activities must be supported by the fulfillment of energy and nutrients in a day optimally. Breakfast consumed at least supplies nutritional needs of 15%-20% of the daily nutritional needs per individual Based on the background that has been discussed, researchers aim to do research to find out the relationship of Breakfast Nutrition and Concentration to Learning Motivation of PG PAUD Students. It is hoped that there is a contribution of breakfast nutrition and concentration to learning motivation. Therefore, the aim of this research was to describe the relationship of breakfast nutrition and concentration to learning motivation of students.

METHOD

Methods utilized in this research are descriptive quantitative research with a type of correlational research. Correlatives research is a study carried out to find out the relationship level of two or several variables, making no change, addition, and manipulation of existing data. The instrument used was a questionnaire using google form with 109 student respondents. Analysis techniques in this study used statistical analysis descriptive and analysis of correlation. Descriptive statistical analysis is a statistic to analyze data to describe the collected data as it is without meaning to making a conclusion that applies to the public or generalize. Meanwhile, correlation analysis was a technique for measuring relationship strength of one variable with another

variable and to be able to define the relationship form among variables. Before the data correlation analysis is carried out, it is necessary to test the prerequisite analysis first, namely the normality test using Kol-mogorov-Smirnov and the multicollinearity test by looking at the tolerance and VIF values in the SPSS Statistic 22 Output.

RESULTS AND DISCUSSION

In this study, data collection for the three variables was carried out using a questionnaire through google form, for the breakfast nutrition variable seen from students' breakfast habits. Data collected was processed and analyze by descriptive statistics using the help of SPSS Statistic 22 program. Prior to correlation test, prerequisite analysis was conducted, namely normality test and multicollinearity test. Normality tests aimed to determine whether the sample data came from a normal distribution population or not. The following results of the normality test are shown in the table 1 is below:

Table 1. Normality Test Results

		Unstandard-ized Residual
N		109
Normal Parameters[a,b]	Mean	.0000000
	Std. Deviation	5.71327861
Most Extreme Differences	Absolute	.069
	Positive	.069
	Negative	-.045
Test Statistic		.069
Asymp. Sig. (2-tailed)		.200[c,d]
a. Test distribution is Normal.		

Normality test in this study was applied by utilizing statistic Kolmogorov-Smirnov with criteria if sig value. > 0.05 then the sample data distribution came out of a population with normal distribution, while the sig value. <0.05 then the sample data distribution is not normal. According to the analysis of normality test calculations in the table above, the sig. value is 0.200> 0.05 so it is concluded the data distribution is normal.

Table 2. Multicollinearity Test Results

Model	**Collinearity Statistics**	
	Tolerance	**VIF**
Breakfast Habits	.978	1.023
Learning Concentration	.978	1.023
a. Dependent Variable: Learning Motivation		

According to table 2 above, the results of data analysis obtained for the VIF value are smaller than 10 (1,023 < 10) and the value of Tolerance is 0.978 (0.978 > 0.1), so it can be concluded that there is no multi-collinearity relationship in the research data. Thus the two independent variables can determine the relationship simultaneously to learning motivation. The two prerequisite tests have been met, so proceed with the correlation analysis.

Table 3. Multiple Correlation Analysis Results

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.232[a]	.054	.036	5.767	.054	3.006	2	106	.048

a. Predictors: (Constant), Study Concentration, Breakfast Habits

The above table shows that the r_{count} value is 0.232. For N = 109, df = N - 2 = 109 - 2 = 107. With df = 107 and a significance level of 5% (0.05), an rtable of 0.1882 is obtained. According to the results of the analysis, it could be concluded that $r_{count} > r_{table}$ (0.232 > 0.1882) and the significance value > 0.05 (0.048 > 0.05). If the calculation result of r count is greater than r table, it can be said that the data obtained is valid. From these results it can be stated that there is a correlation between breakfast nutrition, concentration on learning motivation. The correlation coefficient relationship level interpretation based on 2552 can be viewed at table 4 below

Table 4. Level of Relationship of Correlation Coefficient (Hikmah & Saputra, 2023)

Coefficient Interval	Relationship Level
0,0 – 0,19	Extremely poor
0,2 – 0,39	Feeble
0,4 – 0,59	Medium
0,6 – 0,79	Strength
0,8 – 1,00	Extremely high strength

From the table above, we conclude that there is a weak level of correlation of breakfast nutrition, concentration on motivation to learn because the correlation coefficient value is in the interval, this is indicated by the acquisition of a correlation coefficient of 0.232. From these results it can be stated that there is a relationship between breakfast nutrition, concentration on the learning motivation of students of the Early Childhood Education Study Program can be accepted. This is reinforced according to (Afrilia et al., 2022b) explains that optimal nutritional status will participate in the optimal growth and development process. Healthy individuals with optimal nutritional status will be able to develop their capacity to the fullest by having breakfast before activities. Eating breakfast is considered essential because it energizes the brain to work early morning. Those that skipped their breakfast tended to have low energy for the brain to work, which can interfere with concentration while studying at school (Salsabila & Nareswari, 2023). Increased learning concentration can be achieved through breakfast activities that are strongly associated with intellectual ability, able to provide value to positive activity of the brain, make it sensitive and more easily concentrated (Purnawinadi & Lotulung, 2020). Another study revealed that the type of food consumed at breakfast largely determines the quality of breakfast and the energy generated from breakfast itself. Breakfast can provide carbohydrates which are used to raise blood glucose levels, increasing work productivity (Putra et al., 2018b).

CONCLUSION

Breakfast nutrition and learning concentration levels were positively correlated with students' learning motivation compared to those who rarely or never ate breakfast. The majority of respondents who routinely eat this breakfast has a good level of learning concentration in comparison with respondents that rarely or never eat breakfast. The role of parents, guardians, dormitory heads, and even educators is very important in supporting students to get used to having a healthy breakfast regularly. Breakfast is not just done but needs to

be paid more attention to nutritional quality contained in food, therefore, it is recommended for further research to analyze the nutritional content of food during breakfast as a research variable.

REFERENCES

Afrilia, C., Resmiati, & Rahmy, H. A. (2022a). Hubungan Sarapan Pagi, Status Gizi Dan Motivasi Belajar Dengan Prestasi Belajar Siswa. *Jurnal Endurance*, *7*(2), 485–492. https://doi.org/10.22216/jen.v7i2.910

Afrilia, C., Resmiati, & Rahmy, H. A. (2022b). Hubungan Sarapan Pagi, Status Gizi Dan Motivasi Belajar Dengan Prestasi Belajar Siswa. *Jurnal Endurance*, *7*(2), 485–492. https://doi.org/10.22216/jen.v7i2.910

Al-Faida, N. (2021). Pengaruh Kebiasaan Sarapan Terhadap Konsentrasi Belajar Mahasiswa Stikes Persada Nabire Provinsi Papua. *IKESMA*, *17*(2), 81. https://doi.org/10.19184/ikesma.v17i1.22397

Ali, M. (2011). Kontribusi Status Gizi Dan Motivasi Belajar Terhadap Kesehatan Jasmani Mahasiswa Pendidikan Olahraga Dan Kesehatan Universitas Jambi. *Jurnal Pendidikan Jasmani Indonesia*, *8*(1), 62–70.

Anggraini, F. T. (2023). Peran Hormon Serotonin Dalam Fungsi Memori: Sebuah Studi Literatur. *Jurnal Kesehatan Masyarakat*, *7*(1), 1541–1548.

Basri, M. S., Yohani, A. M., & Suri, I. (2022). Hubungan Motivasi Belajar dengan Konsentrasi Belajar pada Mahasiswa Bahasa Jepang Universitas Riau (Penelitian Korelasi pada Mahasiswa Semester IV Prodi Pendidikan Bahasa Jepang di Universitas Riau). *Jurnal Onoma: Pendidikan, Bahasa, dan Sastra*, *8*(1), 217–224. https://doi.org/10.30605/onoma.v8i1.1691

Boström, L., & Bostedt, G. (2020). What about Study Motivation? Students´ and Teachers' Perspectives on What Affects Study Motivation. *International Journal of Learning, Teaching and Educational Research*, *19*(8), 40–59. https://doi.org/10.26803/ijlter.19.8.3

Ginka, M. I. A. P., Sudiarno, Muhasshonah, A., Sari, M. E., Niswah, N. M., Rinjani, R. M., Elmirza, R. H., & Azizah, V. P. N. (2023). Keterkaitan Antara Sarapan Dengan Tingkat Konsentrasi Belajar Siswa Sma Negeri 1 Puri Mojokerto. *Hospital Majapahit (Jurnal Ilmiah Kesehatan Politeknik Kesehatan Majapahit Mojokerto)*, *15*(2), 248–257. https://doi.org/10.55316/hm.v15i2.1005

Handini, N. P. (2021). *Hubungan Antara Kebiasaan Sarapan, Asupan Gizi, Dan Faktor Lainnya Dengan Konsentrasi Belajar Pada Siswa Sman 1 Jember Tahun 2021* [Skripsi]. Universitas Indonesia.

Hikmah, S. N., & Saputra, V. H. (2023). Korelasi Motivasi Belajar dan Pemahaman Matematis terhadap Hasil Belajar Matematika. *Mathema: Jurnal Pendidikan Matematika*, *5*(1), 42–57.

Lestari, D. A., Barokah, F. I., & Sahari, P. (2022). The Relationship of Breakfast, Nutritional Status with Concentration Studying College Students at STIKes Pertamedika Jakarta. *Jurnal Guru Kita*, *14*(1).

Ola, I. M. B., & Kumala, M. (2023). Pengaruh sarapan terhadap tingkat konsentrasi mahasiswa Fakultas Kedokteran Universitas Tarumanagara. *Tarumanagara Medical Journal*, *5*(1), 75–81. https://doi.org/10.24912/tmj.v5i1.23431

Pranitasari, D., & Maulana, I. (2022). Intrinsic and Extrinsic Factors Affecting Student Motivation in Completing Thesis. *Technium Social Sciences Journal*, *27*, 527–538. https://doi.org/10.47577/tssj.v27i1.5473

Purnawinadi, I. G., & Lotulung, C. V. (2020). Kebiasaan Sarapan Dan Konsentrasi Belajar Mahasiswa. *Nutrix Journal*, *4*(1), 31. https://doi.org/10.37771/nj.Vol4.Iss1.429

Putra, A., Syafira, D. N., Maulyda, S., & Cahyati, W. H. (2018a). Kebiasaan Sarapan pada Mahasiswa Aktif. *HIGEIA (Journal of Public Health Research and Development)*, *2*(4), 577–586. https://doi.org/10.15294/higeia.v2i4.26803

Putra, A., Syafira, D. N., Maulyda, S., & Cahyati, W. H. (2018b). Kebiasaan Sarapan pada Mahasiswa Aktif. *HIGEIA (Journal of Public Health Research and Development)*, *2*(4), 577–586. https://doi.org/10.15294/higeia.v2i4.26803

Rima, T., Yusuf, I. R., Nisa, S., Aulia, V., & Kurniati, T. (2020). Pengaruh Sarapan Terhadap Konsentrasi Belajar Mahasiswa. *Pedagonal : Jurnal Ilmiah Pendidikan*, *04*(01), 26–29.

Rubiana, E. P., & Dadi, D. (2020). Faktor-Faktor Yang Mempengaruhi Motivasi Belajar IPA Siswa SMP Berbasis Pesantren. *Bioed : Jurnal Pendidikan Biologi*, *8*(2), 12. https://doi.org/10.25157/jpb.v8i2.4376

Salsabila, P. S., & Nareswari, S. (2023). Pengaruh Sarapan terhadap Konsentrasi Belajar. *Medical Profession Journal of Lampung*, *13*(1), 146–150. https://doi.org/10.53089/medula.v13i1.593

Sholichah, F. (2021). Tingkat Kecukupan Gizi, Status Gizi, Dan Status Anemia Mahasiswa Penghafal Al Quran Di UIN Walisongo Semarang. *Journal of Nutrition College*, *10*(1), 62–71. https://doi.org/10.14710/jnc.v10i1.28985

Sitohang, T., Sinaga, Y. R. M., Sihombing, D., Gultom, S. B., & Samosir, H. (2023). Manfaat Literasi Dan Motivasi Belajar Di SD Negeri 6 Saitnihuta, Kec. Pangururan, Kab. Samosir Mahasiswa PkM FKIP UHN Medan. *KREATIF: Jurnal Pengabdian Masyarakat Nusantara*, *3*(1), 78–88.

Suwandi, H., & Romli, A. D. (2023). Sosialisasi Motivasi Belajar Terhadap Siswa SDN Cigunungsari. *A b d i m a J u r n a l P e n g a b d i a n M a h a s i s w a*, *2*(2), 6032–6039.

Upoyo, A. S., & Sumarwati, M. (2011). Analisis Faktor- Faktor Yang Mempengaruhi Motivasi Mahasiswa Profesi Ners Jurusan Keperawatan Unsoed Purwokerto. *Jurnal Keperawatan Soedirman*, *6*(2), 81–87.

Verdiana, L., & Muniroh, L. (2018). Kebiasaan Sarapan Berhubungan Dengan Konsentrasi Belajar Pada Siswa SDN Sukoharjo I Malang. *Media Gizi Indonesia*, *12*(1), 14. https://doi.org/10.20473/mgi.v12i1.14-20

Wardani, A. D., Gunawan, I., Kusumaningrum, D. E., Benty, D. D. N., Sumarsono, R. B., Nurabadi, A., & Handayani, L. (2020). Student Learning Motivation: A Conceptual Paper: *Proceedings of the 2nd Early Childhood and Primary Childhood Education (ECPE 2020)*. 2nd Early Childhood and Primary Childhood Education (ECPE 2020), Malang, Indonesia. https://doi.org/10.2991/assehr.k.201112.049

Yang, F.-F., & Rahmawati, R. (2016). Faktor-Faktor Yang Mempengaruhi Motivasi Belajar Siswa Kelas X SMA N 1 Piyungan Pada Mata Pelajaran Ekonomi Tahun Ajaran 2015/2016. *Jurnal Pendidikan dan Ekonomi*, *5*(4), 326–336.