Jurnal Pendidikan Jasmani (JPJ)
Vol. 4, No.2, Desember 2023
ISSN: 2723-2816 (Online)

The Relationship between Nutritional Status and Fundamental Movement Skills of Elementary School Students

Rifky Ihsan Purnama[1], Lukmannul Haqim Lubay[2], Wulandari Putri[3]

[1,2,3]Elementary Physical Education, Faculty of Sport and Health Education, Universitas Pendidikan Indonesia, Dr. Setiabudhi Street No. 229, Bandung 40154, Jawa Barat, Indonesia

Abstract
The nutritional status and fundamental movement skills are one of things that are quite important for the growth and development of children. The nutritional status of children can affect a person's movement skills and fundamental basic movements can be related to daily activities. This research was conducted to know the relationship between nutritional status and fundamental movements in elementary schools. This type of research is a correlational study with a non-experimental research design. Participants included were grade IV students with an age range of 10-11 years of 100 people. The instruments used were BMI measurements and the TGMD-2 test. Data analysis techniques using formulas in the SPSS with spearman correlation. The results showed that the sig value of BMI and basic movement was 0.799 > 0.05 with a correlation coefficient value of 0.26. From these results, it can be concluded that there is no significant relationship between nutritional status and fundamental movement skills in elementary schools.

Keywords: *BMI, Fundamental Movement Skills, Nutritional Status*

Correspondence author: First Author/Second Author/Third Author, Universitas Pendidikan Indonesia, Indonesia.
Email: rifkyihsan@upi.edu

INTRODUCTION

Fundamental movement skills is defined as one of the movements that become the basis of daily movements when someone will do physical activity or sports (Barnett et al., 2016). Another opinion states that fundamental movement skills are the basis of motor skills, which will later be needed for sports activities or other physical activities. Such physical activity includes locomotor, non-locomotor and manipulative motion (Cohen et al., 2014). Then, when this basic movement can be learned with a good motion learning concept, later children will have a foundation in the concept of motion learning in the future.

The concept of motion learning is one of the learning that has the aim that children can improve their cognitive abilities. Then, learning to move is also one aspect of children's growth and development (Vanagosi, 2016). It can be said that the growth and development of the child

itself is one aspect that is quite important to create the necessary conditions for the child to become a complete person. The foundation can be in the form of creativity, creative thinking, social-emotional, language-communication, and also the physical growth and development of the child so that later they will be able to develop basic movement skills of each individual (Suhono & Utama, 2017).

The basic movement itself, especially for elementary school (SD) children, can still be said to be relatively low or below average when compared to their peers (Bakhtiar et al., 2019). This can happen because children find it difficult to adjust to their peers, because they feel unable to do physical activities exemplified by their friends. In addition, good nutritional value in children can help children when children carry out learning activities so that later learning can be more optimal in its implementation (Sepriadi, 2017). Therefore, parents and physical education teachers in schools need to better understand these conditions so that later they can create more optimal basic movements for students (Pratama Putri et al., 2021). In addition, the lack of understanding of parents and teachers on the nutritional status of children does not rule out the possibility of being an obstacle to children's growth and development in the future. Nutritional status is closely related to what is called BMI which can later be used to determine a person's weight. Weight problems at primary school age can pose a variety of risks for degenerative diseases in adulthood.

BMI can be one of the indicators in clinical research (Mahiroh et al., 2019). In elementary school-age children, BMI can also measure obesity or excess body fat, which if the BMI is more than 30 kg/m2 is considered obese. Growth charts used in large populations in Canada define that more than 95% of children are obese and 85% of children are overweight. The ratio of obesity and overweight in children alone has increased significantly when compared to 25 years ago. Meanwhile, recent analyses suggest that childhood obesity rates are likely to continue to rise by 1/3 of children under the age of 11 in Canada (Russell-Mayhew et al., 2012). To prevent this, parents and physical education teachers in schools should be able to focus on food intake and physical activity with a success rate of weight loss or BMI.

Parents knowledge of basic motor skills in their own children can be said to be very weak or even poor so that children are also likely to have poor movement skills. Then another factor could happen because the learning programs provided by physical education teachers in schools

often do not encourage students to move due to the lack of adequate facilities. In addition, the ignorance of teachers and parents about the nutritional status of children can be one of the factors that cause difficulty moving in children, because often the results of BMI measurements exceed weight in children their age.

This study refers to research conducted by (Antoni & Bakhtiar, 2019) on the Relationship of Nutritional Status to Basic Locomotor Movement Skills in Elementary Schools. Where the study only measured nutritional status and locomotor skills. Thus, this study is aimed at completing the shortcomings of the instruments that have been studied. The instruments used in this study were by using BMI measurements and fundamental basic motion skills tests using TGMD-2.

Another research that is used as a basis is research conducted by (Bakhtiar et al., 2020) entitled The Effect of Eye-Hand Coordination, *Body Mass Index* and Gender on the Ability of object control in early childhood students. The weakness in this study is that there are no respondents from the elementary school level but only the early childhood students. Therefore, researchers are interested in completing the shortcomings of the research that has been carried out by bakhtiar et al, based on the background explanation above, researchers are interested in examining the relationship between Nutritional Status and Fundamental Basic Movement Skills in Elementary Schools.

METHOD

The research design used is adjusted to the aspects of research studied. In this study, researchers used a non-experimental quantitative research design with a correlational type. Research using the correlational method is research that investigates and finds relationships between two or more variables, explains the relationship between these variables, and tests and evaluates research results based on existing theories (Kusumowardani & Puspitosari, 2014). Population is one important aspect when going to conduct research, without population, research will not run properly. In this study, researchers took the population of elementary school children with an age range of 10-11 years in one of the sub-districts in the city of Bandung with a total population of 710 students. The sampling technique used in this study uses the *Cluster*

Random Sampling technique, where this technique is used to determine sampling from large data sources or coverage (Sugiono, 2016).

The sample used in this study was using grade IV students. Class IV was chosen as the object of research because at that age children have characteristics that tend to be more active in outdoor learning, especially in physical learning (Fauzi, 2016). The sample used was 100 students from a total population of 710 children with calculations using the slovin formula. As for the implementation stage, researchers only conducted one BMI measurement test and TGMD-2 measurement test in each elementary school. The techniques used to collect data in this study were fundamental basic motion tests using TGMD-2 test instruments and anthropometric measurements by taking data on students' weight, height, and body mass index. After the data is collected, the data is processed using SPSS 21 software and presented in the form of tables and percentages. The location of this study is located in one of the sub-districts in the city of Bandung by involving elementary schools in the sub-district with a research period of one month.

Data analysis used by researchers is by using quantitative methods with correlational analysis. First, the data obtained was transferred first into Microsoft Excel in 2013 and then using statistical software using SPSS 21. Before conducting parametric analysis, the data must be normally distributed because when going to perform a parametric analysis test the data must pass the prerequisite test first (Sugiono, 2017). Then, if the two data from these variables are not normally distributed, then the data analysis uses non-parametric analysis.

RESULTS AND DISCUSSION

In this study, the data processing carried out by researchers was by using the *Statistical Package for the social sciences (SPSS)* application version 21 (attached processing results). In this study, tests and measurements were carried out on grade IV students with an age range of 10-11 years in one of the sub-districts in the city of Bandung. In the implementation stage, researchers want to find the relationship between body mass index (BMI) and fundamental basic motion by taking fundamental basic motion data using TGMD-2 research instruments with several categories: very superior, superior, above average, average, below average, poor, and very poor. As for body mass index data collection, it is seen from the measurement of height and weight of students with nutritional status categories very thin, thin, normal, fat and obese.

The first thing to do when analyzing data is to know the average (X) and standard deviation (SD) of each variable. Here are the results of calculating the average and standard deviation of each variable.

Table 1 Mean and Standar Deviation

No	Name	Mean	Standar Deviation
1.	Fundamental movement skills	81,94	9,89
2.	Body mass index	16,95	2,99

From the table above, it can be concluded that the fundamental fundamental motion has an average of 81.94 with a standard deviation of 9.89. As for the body mass index has an average of 16.95 with a standard deviation of 2.99.

Table 2 Fundamental Movement Skills Frequency and Percentage Data

No	Category	Frequency	Percentage
1.	Very Superior	0	0%
2.	Superior	0	0%
3.	Above Average	0	0%
4.	Average	23	23%
5.	Below Average	34	34%
6.	Poor	32	32%
7.	Very Poor	11	11%
	Total	100	100%

From the table above, it can be seen that with a population of 100 students, the fundamental movement skills test results with the very poor category have a frequency of 11 with a percentage of 11%, the poor category has a frequency of 32 with a percentage of 32%, the category below average has a frequency of 34 with a percentage of 34% and the average category has a frequency of 23 with a percentage of 23%.

Table 3 Body Mass Index Frequency and Percetage Data

No	BMI	Frequency	Percentage
1.	Thin	74	74%
2.	Normal	19	19%
3.	Fat	5	5%
4.	Obese	2	2%
	Total	100	100%

From table 3 above, it can be concluded that the frequency of nutritional status is most in the thin category with a frequency of 74 and a percentage of 74%, the normal category with a frequency of 19 and a percentage of 19%, the fat category with a frequency of 5 and a percentage of 5% and the least category in the obese category with a frequency of 2 and a percentage of 2%.

Table 4 Normality Test

No	Name	Sig	Category
1.	Fundamental Movement Skills	0,427	Normal
2.	Body Mass Index	0,008	Not Normal

The results of the fundamental movement skills normality test and body mass index, for fundamental movement skills itself obtained a sig value of 0.427 > 0.05 which means the data for fundamental movement skills is normally distributed. As for the body mass index normality test, a sig value of 0.008 < 0.05 is obtained, which means that the data is not normally distributed. So to test the correlation between fundamental movement skills and body mass index using a non-parametric correlation test because one of the data is not normally distributed.

Table 5 Correlation Test (Spearman Correlation)

			FMS	BMI
Spearman's rho	**FMS**	Correlation Coefficient	.	0.26
		Sig (2-tailed)	.	0.799
	BMI	Correlation Coefficient	0.26	.
		Sig (2-tailed)	0.799	.

From the table above, the results of the spearman correlation test show a sig result of 0.799 > 0.05 with a positive correlation coefficient of 0.026.

The results of *spearman correlation* using SPSS 21 for windows obtained results between the body mass index and fundamental fundamental motion of *p* 0.799 > 0.05. This shows that there is no significant relationship between the two variables. This can occur due to several factors including age, sex, environment, genetics and diet (Pradana et al., 2014). This is in line with research conducted by (Wijaya et al., 2020) where in his research stated that children with overweight (obesity) will have difficulty when going to physical activity. In addition, diet is also one of the causative factors of obesity itself.

In addition, the results of different studies were conducted by(Sambo et al., 2020) where the study stated that the diet of students has a significant relationship with nutritional status because

it can affect the activities of these students. The results of this study may be different if similar research is carried out by taking a wider research subject. Then, the fulfillment of nutrition for elementary school students needs to be done considering that in the sub-district there are still many children who have a nutritional status category that is less when compared to children their age.

CONCLUSION

In accordance with the formulation of the problem, objectives and research results regarding the relationship between body mass index and fundamental basic motion, it can be concluded that there is no relationship between body mass index and fundamental basic movement skills for elementary school students studied by researchers in one of the sub-districts in the city of Bandung. However, the fulfillment of nutrition for elementary school students needs to be done considering that in the sub-district there are still many children who have a nutritional status category that is less when compared to children their age. In addition, basic movements become one of the initial foundations for children to be able to carry out daily activities. Good movement must certainly be supported by good food intake as well. Therefore, with the intake of foods that contain balanced nutrition, it is hoped that later children will be able to carry out sports activities and daily activities well.

Based on the conclusions described above, the researcher then put forward several suggestions for future research. Based on the results of research that has been conducted shows that there is no significant relationship between body mass index and fundamental basic movements of elementary school students, but for the fulfillment of nutritional status must still be done by parents because when viewed from the nutritional status table there are still many children in the category of deficient nutritional status. Furthermore, this research needs to be developed again with similar research but by taking wider subject data so that the results can be more accurate.

ACKNOWLEDGMENT

The author would say thank you to the SDN 030 Cirateun, SDN 108 Ciumbuleuit, SDN 085 Ciumbuleuit, SD Muhammadiyah 6 and SD suruur, Bandung City, which has permitted author to collect data so it can be completed properly.

REFERENCES

Antoni, R., & Bakhtiar, S. (2019). Hubungan Status Gizi Terhadap Keterampilan Gerak Dasar Lokomotor di Sekolah Dasar. *Jurnal Pendidikan Dan Olahraga*, *2*(8), 21–27.

Bakhtiar, S., Johor, Z., Oktarifaldi, O., & Putri, L. P. (2019). Implementation of Learning and Fundamental Motor Skill Measurement of Early Childhood Motor Skill for PAUD Teachers in Padang Panjang City. *Jurnal Humanities Pengabdian Kepada Masyarakat*, *1*(1), 36–47. https://doi.org/10.24036/jha.v1i1.2

Bakhtiar, S., Johor, Z., Pulungan, A. A., Oktarifaldi, O., Syahputra, R., & Putri, L. P. (2020). Pengaruh Koordinasi Mata-Tangan, Body Mass Index dan Jenis Kelamin terhadap Kemampuan Objek Kontrol Siswa PAUD. *Jurnal MensSana*, *5*(1), 9. https://doi.org/10.24036/jm.v5i1.119

Barnett, L. M., Stodden, D., Cohen, K. E., Smith, J. J., Lubans, D. R., Lenoir, M., Iivonen, S., Miller, A. D., Laukkanen, A., Dudley, D., Lander, N. J., Brown, H., & Morgan, P. J. (2016). Fundamental movement skills: An important focus. *Journal of Teaching in Physical Education*, *35*(3), 219–225. https://doi.org/10.1123/jtpe.2014-0209

Cohen, K. E., Morgan, P. J., Plotnikoff, R. C., Callister, R., & Lubans, D. R. (2014). Fundamental movement skills and physical activity among children living in low-income communities: A cross-sectional study. *International Journal of Behavioral Nutrition and Physical Activity*, *11*(1). https://doi.org/10.1186/1479-5868-11-49

Fauzi, M. I. (2016). Hubungan Kedisiplinan Belajar di Rumah dan di Sekolah Dengan Prestasi Belajar IPA Siswa Kelas IV SD Se-Gugus Dewi Sartika UPPD Tegal Selatan Kota Tegal 2012/2013. *Jurnal Dinamika Pendidikan Dasar*, *8*(1), 44–49.

Kusumowardani, A., & Puspitosari, An. (2014). Hubungan Antara Tingkat Depresi Lansia Dengan Interaksi Sosial Lansia Di Desa Sobokerto Kecamatan Ngemplak Boyolali. *Jurnal Terpadu Ilmu Kesehatan*, 184–188.

Mahiroh, H., Astutik, E., & Pratama, R. A. (2019). The Association of Body Mass Index, Physical Activity and Hypertension in Indonesia. *Jurnal Ners*, *14*(1), 16–22. https://doi.org/10.20473/jn.v14i1.12811

Pradana, A., Nugroho H.S, K. H., & Puruhita, N. (2014). Hubungan Antara Indeks Massa Tubuh (Imt) Dengan Nilai Lemak Viseral. *Jurnal Media Medika Muda*, *3*(1), 6–15.

Pratama Putri, L., Oktavianus, I., Syahputra, R., & Mardela, R. (2021). Pendampingan dalam Evaluasi Gerak Dasar Bagi Guru PAUD dan TK di Kabupaten Lima Puluh Kota. *Journal Berkarya Pengabdian Kepada Masyarakat*, *3*(1), 20–31.

Russell-Mayhew, S., McVey, G., Bardick, A., & Ireland, A. (2012). Mental health, wellness, and childhood overweight/obesity. *Journal of Obesity*, *2012*. https://doi.org/10.1155/2012/281801

Sambo, M., Ciuantasari, F., & Maria, G. (2020). Hubungan Pola Makan Dengan Status Gizi Pada Anak Usia Prasekolah. *Jurnal Ilmiah Kesehatan Sandi Husada*, *11*(1), 423–429. https://doi.org/10.35816/jiskh.v11i1.316

Sepriadi, S. (2017). Kontribusi status gizi dan kemampuan motorik terhadap kesegaran jasmani

siswa sekolah dasar. *Jurnal Keolahragaan*, *5*(2), 194. https://doi.org/10.21831/jk.v5i2.15147

Sugiono. (2016). *Metode Penelitian Kuantitatif, Kualitatif dan R&D*. PT Alfabeta.

Sugiono. (2017). *Metode Penelitian Kuantitatif, Kualitatif dan R&D*. PT Alfabeta.

Suhono, S., & Utama, F. (2017). Keteladanan Orang Tua Dan Guru Dalam Pertumbuhan Dan Perkembangan Anak Usia Dini. *Elementary: Jurnal Ilmiah Pendidikan Dasar*, *3*(2), 107. https://doi.org/10.32332/elementary.v3i2.833

Vanagosi, K. D. (2016). Konsep gerak dasar untuk anak usia dini. *Pendidikan Kesehatan Rekreasi*, *1*, 72–79.

Wijaya, G. B. R., Muliarta, I. M., & Permana, P. (2020). Faktor-faktor yang berpengaruh pada Indeks Massa Tubuh (IMT) pada anak Sekolah Menengah Atas (SMA) di Kecamatan Buleleng, Bali, Indonesia tahun 2016. *Intisari Sains Medis*, *11*(1), 223–227. https://doi.org/10.15562/ism.v11i1.528