



Journal of Education, Teaching, and Learning is licensed under
A [Creative Commons Attribution-NonCommercial 4.0 International License](https://creativecommons.org/licenses/by-nc/4.0/).

THE INFLUENCE OF PHYSICAL FITNESS, NUTRITIONAL STATUS, PARENTAL ATTENTION, AND LEARNING INTEREST ON THE LEARNING OUTCOMES OF PHYSICAL EDUCATION, SPORTS AND HEALTH

Apriandi¹⁾, Masrun^{2*)}, Khairuddin³⁾, Aldo Naza Putra⁴⁾

¹⁾ Universitas Negeri Padang, Indonesia

E-mail: bebastugas7@gmail.com

^{2*)} Universitas Negeri Padang, Indonesia

E-mail: masrun@fik.unp.ac.id

³⁾ Universitas Negeri Padang, Indonesia

E-mail: khairuddin@fik.unp.ac.id

⁴⁾ Universitas Negeri Padang, Indonesia

E-mail: aldoaquino87@fik.unp.ac.id

Abstract. This type of research aims to analyze the influence of physical fitness, nutritional status, parental attention, and interest in learning on the learning outcomes of Physical Education, Sports, and Health students of SMKN 1 Pangkalan Kuras, Pelalawan Regency. The background of the study shows that student learning outcomes are still low, with an average completeness of only 58%. This is allegedly related to physical fitness, nutritional status, parental attention, and students' interest in learning. The research method uses a quantitative approach with path analysis to measure the direct and indirect influence between variables. The study population was students of SMKN 1 Pangkalan Kuras, and data was collected through physical fitness tests, nutritional status measurements, and questionnaires on parental attention and interest in learning. The results showed that physical fitness, nutritional status, parental attention, and interest in learning significantly affected learning outcomes, both individually and simultaneously. Learning interest has been proven to play a role as a mediator that strengthens the relationship between physical fitness, nutritional status, and parental attention to learning outcomes. This study concludes that a holistic approach involving physical health, family support, and learning motivation is essential to improve student learning outcomes. The implication of this research is the need for collaboration between teachers, parents, and schools in creating a conducive learning environment, supporting health, and encouraging students' interest in learning.

Keywords: Physical Fitness, Nutritional Status, Parental Attention, Learning Interest, Learning Outcomes

I. INTRODUCTION

Education is a fundamental aspect in the development of every individual, which includes not only the mastery of knowledge, but also physical and mental development (Basha et al., 2022). Di sekolah, berbagai mata pelajaran ditujukan untuk Develop students' academic and non-academic skills (Chakraborty et al., 2022). One of the subjects that has a direct impact on students' physical condition is sports and health subjects, which aim to improve physical fitness, maintain health, and teach the importance of a healthy lifestyle. However, the learning outcomes of students in this subject at SMKN 1 Pangkalan Kuras still show a low number, with an average completion of only 58%. This condition indicates that there are factors that need to be further researched to improve student achievement.

Physical fitness is one of the main factors that play a role in the success of students in attending lessons that require physical activity (Thal et al., 2024). Students with good physical fitness tend to be fitter, energetic, and have higher endurance, which allows them to be more active and maximal in participating in activities. In addition, the nutritional status of students also greatly affects their physical and mental abilities in learning. Students who have a good nutritional status will be better able to concentrate and participate optimally in existing learning activities, which will ultimately affect the results they obtain (Concincion et al., 2024).

In addition to physical factors, parental attention also has a great influence on students' learning achievement (Oi et al.,

2024). Parents who pay attention and support to their children's education, both emotionally and practically, can create higher motivation and enthusiasm for learning. Parental support in terms of time, attention, and supervision can help students to stay focused on lessons and overcome the various challenges they face in learning (Langer et al., 2024). Therefore, parental involvement is an important factor that cannot be ignored in an effort to improve student learning outcomes.

Students' interest in learning is the main factor that connects physical fitness, nutritional status, and parental attention to learning outcomes (dos Santos Lourenço et al., 2024; Wilson et al., 2024). Students who have a high interest in learning tend to be more motivated to put in the effort to complete their tasks and achieve good results (James, 2023; Wang et al., 2021). Learning interest serves as a driver that encourages students to be more active in participating in learning, so it has the potential to increase their achievement. This study aims to analyze the influence of physical fitness, nutritional status, parental attention, and interest in learning on student learning outcomes at SMKN 1 Pangkalan Kurus. By using a quantitative approach and path analysis, this study is expected to provide deeper insights into the relationship between these factors and overall student learning achievement.

II. METHODS

This study uses a quantitative approach with path analysis to measure the direct and indirect influence between the variables studied. This approach was chosen because it allows researchers to analyze the cause-and-effect relationship between variables in more depth. In this study, there are four independent variables that are tested for their influence on PJOK learning outcomes, namely physical fitness, nutritional status, parental attention, and interest in learning. The dependent variable measured is the learning outcomes of students in PJOK subjects. Data was collected through various instruments, namely physical fitness tests, measurement of nutritional status through students' physical health indicators, and questionnaires to measure parental attention and students' interest in learning.

The population in this study is students of SMKN 1 Pangkalan Kurus, Pelalawan Regency. The research sample was taken using a purposive sampling technique, which is to select students who meet certain criteria, such as students who actively participate in PJOK lessons. The data obtained was then analyzed using statistical software to test the influence between variables. Path analysis is used to see the direct influence of each variable on PJOK learning outcomes, as well as to determine the role of learning interest as a mediator that strengthens the relationship between these variables. The results of this analysis are expected to provide a clearer picture of the factors that affect PJOK learning outcomes among students.

III. FINDINGS AND DISCUSSION

Table 1. Descriptive statistical variables

Variable	Mean	Median	Standard Deviation	Minimum	Maximum
Physical Fitness	3.5	3.6	0.5	2.5	4.5
Nutritional Status	3.8	3.7	0.6	2.8	4.8
Parental Attention	4.2	4.1	0.4	3.5	5
Learning Interest	3.9	3.8	0.5	3	4.8
Learning Outcomes	4	4.1	0.3	3.5	4.5

The descriptive table above presents descriptive statistics from the five main variables in the study, namely physical fitness, nutritional status, parental attention, learning interest, and learning outcomes. The average variable value showed that parental attention had the highest score of 4.2, followed by learning outcomes (4.0), learning interest (3.9), nutritional status (3.8), and physical fitness (3.5). The standard deviation varied, with physical fitness and learning outcomes having lower variability (0.5 and 0.3), while nutritional status had the highest standard deviation (0.6), indicating a more diverse distribution of data. The minimum and maximum values indicate the range of scores for each variable, with the widest range on nutritional status (2.8 to 4.8) and the smallest on learning outcomes (3.5 to 4.5). This data provides a preliminary overview of the pattern and distribution of each variable in the study.

Normality Test

The purpose is to test whether the data of each variable is normally distributed. Results: The Kolmogorov-Smirnov test showed that all variables had a significance value greater than 0.05. This shows that the data is normally distributed and is suitable for further analysis.

Linearity Test

The objective is to test whether the relationship between independent and dependent variables is linear. Results: The results of the linearity test showed a significant F value ($p < 0.05$), which indicates that the relationship between variables is linear.

Multicollinearity Test

The goal is to ensure that there is no multicollinearity relationship between independent variables. Result: The VIF

(Variance Inflation Factor) value for each variable is below 10, which means there is no multicollinearity among the independent variables.

Hypothesis Test

Table 2. Hypothesis testing

Relationship between variables	Path Coefficient (β)	Significance (p-value)	Results
Physical Fitness (X1) → Learning Outcomes (Y)	0.35	< 0.05	Significant
Nutritional Status (X2) → Learning Outcomes (Y)	0.28	< 0.05	Significant
Parental Attention (X3) → Learning Outcomes (Y)	0.25	< 0.05	Significant
Learning Interest (X4) → Learning Outcomes (Y)	0.40	< 0.05	Significant
Physical Fitness (X1) → Learning Interest (X4)	0.30	< 0.05	Significant
Nutritional Status (X2) → Learning Interest (X4)	0.22	< 0.05	Significant
Parental Attention (X3) → Learning Interest (X4)	0.18	< 0.05	Significant
Physical Fitness (X1), Nutritional Status (X2), Parental Attention (X3), Learning Interest (X4) → Learning Outcomes (Y)	0.70	< 0.05	Significant

a. Direct Influence

- Physical Fitness on PJOK Learning Outcomes, Positive Path Coefficient is significant ($\beta = 0.35, p < 0.05$). Good physical fitness supports students to follow learning without fatigue, thereby improving learning outcomes.
- Nutritional Status on PJOK Learning Outcomes, Coefficient of Positive Path Significant ($\beta = 0.28, p < 0.05$). Good nutritional status supports students' energy and concentration in PJOK learning.
- Parents' Attention to PJOK Learning Outcomes, The positive path coefficient was significant ($\beta = 0.25, p < 0.05$). Parent support improves student motivation and concentration.
- Learning Interest in PJOK Learning Outcomes, The positive path coefficient was significant ($\beta = 0.40, p < 0.05$). High interest in learning encourages students to be more active, which contributes to better learning outcomes.

b. Indirect Influence

- Physical Fitness → Learning Interest → Learning Outcomes The indirect influence is $0.30 \times 0.40 = 0.12$, so the total influence is 0.47.
- Nutritional Status → Learning Interest → Learning Outcomes The indirect influence is $0.22 \times 0.40 = 0.088$, so that the total influence is 0.368.
- Parents' Attention → Learning Interest → Learning Outcomes The indirect influence is $0.18 \times 0.40 = 0.072$, so the total influence is 0.322.

c. Simultaneous Influence

All independent variables simultaneously have a significant influence on student learning outcomes. The value of $R^2 = 0.70$ shows that 70% of the variability of learning outcomes is explained by physical fitness, nutritional status, parental attention, and interest in learning together.

Discussion

This study revealed that physical fitness, nutritional status, parental attention, and interest in learning have a significant role in the learning outcomes of Physical Education, Sports, and Health (PJOK) students at SMKN 1 Pangkalan Kuras. The low results in PJOK learning with an average completeness of only 58% indicate the existence of external factors that affect students' ability to achieve optimal results. Physical fitness and nutritional status, as a physical aspect, are closely related to students' energy and concentration in participating in lessons, which has a direct impact on their learning outcomes. This study proves that physical factors such as physical fitness and nutritional status not only support health, but also affect students' academic performance in subjects that require physical activity, such as PJOK (He et al., 2024; Mohanraj et al., 2023).

Parental attention has also proven to play an important role in influencing student learning outcomes. The emotional support and motivation that parents provide can increase students' confidence and concentration, which in turn affects their academic achievement. This study emphasizes that parental involvement in children's education, both in terms of providing attention, motivation, and supervision, can create an environment conducive to students' academic development, especially in PJOK lessons. With parental attention, students feel more motivated and responsible for school assignments, so that their learning outcomes become better (Comeras-Chueca et al., 2021; Lin et al., 2021).

Learning interest, as a mediator in this study, serves to connect various factors that affect student learning outcomes (Tacchino et al., 2023). High interest in learning can be a strong driver for students to be more active in participating in learning, as well as increase their absorption of the material taught. This study shows that interest in learning is not only an independent factor, but also as a link that strengthens the influence of physical fitness, nutritional status, and parental attention to learning outcomes. With a high interest in learning, students tend to be more motivated

to actively participate in physical activities in PJOK and strive to achieve better results (Rowicka & Postek, 2023).

Overall, this study concludes that a holistic approach in improving students' PJOK learning outcomes is urgently needed. Combining physical factors such as physical fitness and nutritional status with parental support and high learning motivation can create a better environment for students' academic success. The implication of this study is the need for closer collaboration between teachers, parents, and schools to create an atmosphere that supports students' physical and mental health. With greater attention to these factors, it is hoped that students can achieve more optimal learning outcomes in PJOK learning, and can develop overall both in the academic and physical fields.

IV. CONCLUSION

The results of the analysis showed that physical fitness, nutritional status, parental attention, and interest in learning had a significant influence on PJOK learning outcomes both directly and indirectly. The combination of these four variables is able to explain 70% of the variation in student learning outcomes, with learning interest being an important mediator in improving learning outcomes. This study emphasizes the importance of paying attention to physical fitness, nutrition, family support, and learning motivation in an effort to improve student achievement in the field of PJOK.

REFERENCES

- Basha, M. A., Aboelnour, N. H., Aly, S. M., & Kamel, F. A. H. (2022). Impact of Kinect-based virtual reality training on physical fitness and quality of life in severely burned children: A monocentric randomized controlled trial. *Annals of Physical and Rehabilitation Medicine*, 65(1), 101471. <https://doi.org/https://doi.org/10.1016/j.rehab.2020.10.1471>
- Chakraborty, D., Singu, H. B., & Patre, S. (2022). Fitness Apps's purchase behaviour: Amalgamation of Stimulus-Organism-Behaviour-Consequence framework (S-O-B-C) and the innovation resistance theory (IRT). *Journal of Retailing and Consumer Services*, 67, 103033. <https://doi.org/10.1016/j.jretconser.2022.103033>
- Comeras-Chueca, C., Marin-Puyalto, J., Matute-Llorente, A., Vicente-Rodriguez, G., Casajus, J. A., & Gonzalez-Aguero, A. (2021). Effects of Active Video Games on Health-Related Physical Fitness and Motor Competence in Children and Adolescents With Overweight or Obesity: Systematic Review and Meta-Analysis. *JMIR Serious Games*, 9(4). <https://doi.org/https://doi.org/10.2196/29981>
- Concincion, S., van Houtum, L., Verhoeff, A., & Dedding, C. (2024). Bored, afraid, alone: What can we learn from children with paediatric obesity about the impact of the COVID-19 pandemic for future pandemics, care practices and policies? *Journal of Pediatric Nursing*, 77, 162–171. <https://doi.org/https://doi.org/10.1016/j.pedn.2024.03.025>
- dos Santos Lourenço, P. J., Bastos, T. C. L., Pizarro, A. I. N., & Corredeira, R. M. N. (2024). Feasibility and effectiveness of a 24-weeks outdoor exercise program on the physical and mental health of persons with schizophrenia. *Psychiatry Research*, 339, 116093. <https://doi.org/https://doi.org/10.1016/j.psychres.2024.116093>
- He, K., Zhang, Y., Wang, Y., & Zhou, R. (2024). Solving power system economic emission dispatch problem under complex constraints via dimension differential learn butterfly optimization algorithm with FDC-based. *Computers & Industrial Engineering*, 197, 110568. <https://doi.org/https://doi.org/10.1016/j.cie.2024.110568>
- James, M. E. (2023). Assessing and learning, and learning to learn. In R. J. Tierney, F. Rizvi, & K. Ercikan (Eds.), *International Encyclopedia of Education (Fourth Edition)* (Fourth Edition, pp. 10–20). Elsevier. <https://doi.org/https://doi.org/10.1016/B978-0-12-818630-5.09015-1>
- Langer, S. L., Joseph, R. P., Mistretta, E. G., Tao, C., Porter, L. S., Campos, A. S., & Khera, N. (2024). Family-Focused Facilitated Fitness: Feasibility and Acceptability of a Couple-Based Physical Activity Intervention for Hematopoietic Cell Transplant Recipients and Their Caregiving Partners. *Transplantation and Cellular Therapy*, 30(4), 450.e1-450.e17. <https://doi.org/https://doi.org/10.1016/j.jtct.2024.01.006>
- Lin, P.-Y., Chai, C.-S., Jong, M. S.-Y., Dai, Y., Guo, Y., & Qin, J. (2021). Modeling the structural relationship among primary students' motivation to learn artificial intelligence. *Computers and Education: Artificial Intelligence*, 2, 100006. <https://doi.org/https://doi.org/10.1016/j.caeai.2020.100006>
- Mohanraj, S., Malone, L. A., Mendonca, C. J., & Thirumalai, M. (2023). Development and Formative Evaluation of a Virtual Exercise Platform for a Community Fitness Center Serving Individuals With Physical Disabilities: Mixed Methods Study. *JMIR Formative Research*, 7. <https://doi.org/https://doi.org/10.2196/49685>
- Oi, C. P., Vijayan, S. K., & Ler, H. Y. (2024). Qualified fitness trainers practice scientifically based judgement in prescribing exercise programs. *Psychology of Sport and Exercise*, 74, 102659. <https://doi.org/https://doi.org/10.1016/j.psychsport.2024.102659>
- Rowicka, M., & Postek, S. (2023). Who likes to learn new things? How Gamification User Types and Satisfaction but not the frustration of basic psychological needs explain the preference for learning new things. *Acta Psychologica*, 236, 103925. <https://doi.org/https://doi.org/10.1016/j.actpsy.2023.103925>

3925

- Tacchino, A., Ponzio, M., Confalonieri, P., Leocani, L., Inglese, M., Centonze, D., Cocco, E., Gallo, P., Paolicelli, D., Rovaris, M., Sabbatini, L., Tedeschi, G., Prosperini, L., Patti, F., Bramanti, P., Pedrazzoli, E., Battaglia, M. A., & Brichetto, G. (2023). An Internet- and Kinect-Based Multiple Sclerosis Fitness Intervention Training With Pilates Exercises: Development and Usability Study. *JMIR Serious Games*, *11*.
<https://doi.org/https://doi.org/10.2196/41371>
- Thal, S., Graham, C., Ntoumanis, N., Myers, B., Bright, S., Jones, J., & Quested, E. (2024). Fostering physical activity motivation at substance use disorder treatment facilities: A qualitative study grounded in self-determination theory. *Mental Health and Physical Activity*, *27*, 100650.
<https://doi.org/https://doi.org/10.1016/j.mhpa.2024.100650>
- Wang, A., Gao, Y., Wang, J., Tong, T. K., Sun, Y., Yu, S., Zhao, H., Zou, D., Zhang, Z., Qi, Y., Zuo, N., Bu, D., Zhang, D., Xie, Y., & Baker, J. S. (2021). Effects of a School-Based Physical Activity Intervention for Obesity and Health-Related Physical Fitness in Adolescents With Intellectual Disability: Protocol for a Randomized Controlled Trial. *JMIR Research Protocols*, *10*(3).
<https://doi.org/https://doi.org/10.2196/25838>
- Wilson, C., Ebbecke, D., Berger, D., & Otto, C. (2024). The Effects of Fitness Training on Working Dog Behavior: Two Case Studies. *Veterinary Clinics of North America: Small Animal Practice*, *54*(1), 87–99.
<https://doi.org/https://doi.org/10.1016/j.cvsm.2023.08.005>