

Relationship between lung vital capacity, nutritional status activity and motivation to exercise on physical fitness among students in Jakarta

Relación entre la capacidad vital pulmonar, el estado nutricional, la actividad y la motivación para hacer ejercicio en la aptitud física de los estudiantes de Yakarta

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Abstract. This research aims to determine the vital capacity of the lungs, nutritional status, physical activity and motivation to exercise on physical fitness for students of Jakarta 140 Junior High School in 2019, a sample of 60 male and female students. This research uses a survey method to see the effect between variables. Data analysis techniques using path analysis. Path analysis technique is used to test the direct and indirect effects on vital lung capacity, nutritional status, physical activity and motivation to exercise on physical fitness in students of Jakarta 140 Junior High School. Path analysis technique with the help of SPSS program version 20.00 at the significance level $\alpha = 0.05$. The results of this research are as follows: (1) The vital capacity of the lungs directly influences physical fitness; (2) Nutritional status directly influences physical fitness; (3) Physical activity directly influences physical fitness; (4) Sport motivation has a direct effect on physical fitness; (5) the vital capacity of the lungs directly affects the motivation to exercise; (6) Nutritional status directly influences sports motivation; (7) Physical activity directly influences the motivation to exercise; (8) Lung's vital capacity through motivation to exercise simultaneously has direct effect on physical fitness; (9) Nutritional status through motivation to exercise simultaneously has direct effect on physical fitness; and (10) Physical activity through motivation to exercise simultaneously has direct effect on physical fitness. Thus, the higher the lung's vital capacity, nutritional status, physical activity and motivation to exercise a person, the better the physical fitness level of the person and vice versa, the lower the vital capacity of the lungs, nutritional status, physical activity, then the lower the person's physical fitness level.

Keywords: vital lung capacity, nutritional status, physical activity, exercise motivation, and physical fitness

Resumen. Esta investigación tiene como objetivo determinar la capacidad vital de los pulmones, el estado nutricional, la actividad física y la motivación para hacer ejercicio en la aptitud física de los estudiantes de la escuela secundaria Jakarta 140 en 2019, una muestra de 60 estudiantes hombres y mujeres. Esta investigación utiliza un método de encuesta para ver el efecto entre las variables. Técnicas de análisis de datos utilizando análisis de ruta. La técnica de análisis de ruta se utiliza para probar los efectos directos e indirectos sobre la capacidad vital pulmonar, el estado nutricional, la actividad física y la motivación para hacer ejercicio en la aptitud física en estudiantes de la escuela secundaria Jakarta 140. Técnica de análisis de ruta con la ayuda del programa SPSS versión 20.00 en el nivel de significancia $\alpha = 0.05$. Los resultados de esta investigación son los siguientes: (1) La capacidad vital de los pulmones influye directamente en la aptitud física; (2) El estado nutricional influye directamente en la aptitud física; (3) La actividad física influye directamente en la aptitud física; (4) La motivación deportiva tiene un efecto directo en la aptitud física; (5) La capacidad vital de los pulmones afecta directamente a la motivación para hacer ejercicio; (6) El estado nutricional influye directamente en la motivación deportiva; (7) La actividad física influye directamente en la motivación para hacer ejercicio; (8) La capacidad vital de los pulmones a través de la motivación para hacer ejercicio simultáneamente tiene un efecto directo sobre la aptitud física; (9) El estado nutricional a través de la motivación para hacer ejercicio simultáneamente tiene un efecto directo sobre la aptitud física; y (10) La actividad física a través de la motivación para hacer ejercicio simultáneamente tiene un efecto directo sobre la aptitud física. Por lo tanto, cuanto mayor sea la capacidad vital de los pulmones, el estado nutricional, la actividad física y la motivación para hacer ejercicio de una persona, mejor será el nivel de aptitud física de la persona y viceversa, cuanto menor sea la capacidad vital de los pulmones, el estado nutricional, la actividad física, entonces menor será el nivel de aptitud física de la persona.

Palabras clave: Capacidad pulmonar vital, estado nutricional, actividad física, motivación para hacer ejercicio y aptitud física.

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Introduction

Life in the modernization era is full of challenges, including threats to the quality of life related to human health (Adji et al., 2022; Salafi et al., 2022). The impact of modernization, which uses technology all the time, limits humans from physical activities in the form of games and sports, so that the level of physical fitness, is not in accordance with the burden of daily activities, including the burden on the body which causes lazy to move (Amran et

al., 2023; Salafi et al., 2023; Shahril et al., 2024). Through regular physical activity, you will get adequate body organs and functions to develop better physical abilities and joints (Arifin et al., 2024; Sonjaya et al., 2024). One appropriate place to deal with the impact that will occur on a series of problems in the future is through sports activities (Auliana et al., 2024; Sukendro et al., 2021). Sports activities are activities that are not interrupted, it can even be said that sports are part of the activities of human life. Sport is a necessity of human life (Dong et al., 2024; Sutapa et al.,

2020). By exercising, especially sports related to health will be able to maintain and improve the degree of human life (Hardianto et al., 2022; Sutapa et al., 2024). Without exercise there will be a decline in health and increase the likelihood of developing non-infectious diseases (Hastuti et al., 2021; Trisnadi et al., 2023). A healthy human being is a resource needed in development, therefore sports need to be increasingly promoted and improved as a way of physical and spiritual development for every member of society (Ilham et al., 2021; Trisnadi et al., 2024). Then supported by the government's recommendations with the National Sports movement, namely: "Promoting sports and sports the community". So with this exercise, the level of health and physical fitness is expected to increase (Jufrianis et al., 2021; Utami et al., 2023).

Therefore, high physical fitness is needed by all people both school-age children, colleges and the general public (Kauki et al., 2024; Utami et al., 2024). By having high physical fitness, students will be able to do daily activities with a longer time compared to students who have low physical fitness (Kogoya et al., 2023; Widodo et al., 2024). Physical fitness is essentially a body condition that reflects a person's ability to do daily work without experiencing excessive fatigue and still being able to do other activities (Kristiyanto et al., 2020; Yudianto et al., 2024). Thus, according to WHO physical fitness is "the ability to do physical activity." Meanwhile, physical fitness is the ability to carry out moderate and active physical activities without experiencing fatigue and having the ability to live life (Listyarini et al., 2021; Yudhistira et al., 2021). In addition, good physical fitness will greatly help prevent the body from diseases caused by lack of movement (Nasrulloh et al., 2020; Yuniana et al., 2023). The condition of good physical condition will affect the psychiatric aspects of improvement in work motivation, work spirit, self confidence, thoroughness, etc. Psychologically, physical circumstances also seem to be of great influence in our environmental activities, especially in socializing. Socializing in question is active in exercising (Nasrulloh et al., 2021).

The conditions in the field are: 1) Most students consider that physical fitness especially related to the vital capacity of the lungs, nutritional status, physical activity and exercise motivation is not important because so far more important is the achievement in the sport and in the academic field. Surely this is not true because a person without good physical fitness will not be able to have good achievements in his academic. As a result of the student's physical fitness is very low, this affects students' learning activities that are always feeling tired while following the next teaching and learning activities. 2) Lack of motivation for students to follow the learning activities of physical education for a variety of reasons that do not fit, 3) Students assume that the vital capacities of the lung, nutritional status, physical activity and exercise motivation are less important and many more problems that scientific research needs to do. Thus, the higher the lung's vital capacity, nutritional status, physical activity and motivation to

exercise a person, the better the physical fitness level of the person and vice versa, the lower the vital capacity of the lungs, nutritional status, physical activity, then the lower the person's physical fitness level ((Nasrulloh et al., 2022).

Based on the problems above, this research is directed to the vital capacity of the lungs, nutritional status, physical activity and exercise motivation, to the four types of variables have a different test implementation procedures are expected to improve physical fitness. Thus, we want to know the influence through a deeper study by conducting research with the title "influence of lung vital capacity, nutritional status, physical activity and motivation to exercise on physical fitness in students of Jakarta 140 Senior High School".

Materials and Methods

Method of research is used a survey method to see the effect between variables. Data analysis techniques using path analysis. Path analysis technique is used to test the direct and indirect effects on vital lung capacity, nutritional status, physical activity and motivation to exercise on physical fitness in students of Jakarta 140 Junior High School. Data Collection Techniques In this research using tools (instruments). The research instruments created include (1) The vital lung capacity test, (2) Nutritional Status test, (3) Physical activity, (4) Exercise Motivation test and (5) Fitness test students of Jakarta 140 Junior High School.

The samples of this research were the student of Jakarta 140 Junior High School with the total 60 students. 60 students divided into 30 male student and 30 female student. The data analysis techniques used Descriptive statistics. Analysis requirement test is: (1) Normality test, and (2) Homogeneity Test. (3) Statistical hypothesis Test. The statistic test is done by testing the correlation to see the relationship that occurs between the exogenous variables and the corresponding endogenous variables of each other. The research draft can be seen in the following figure:

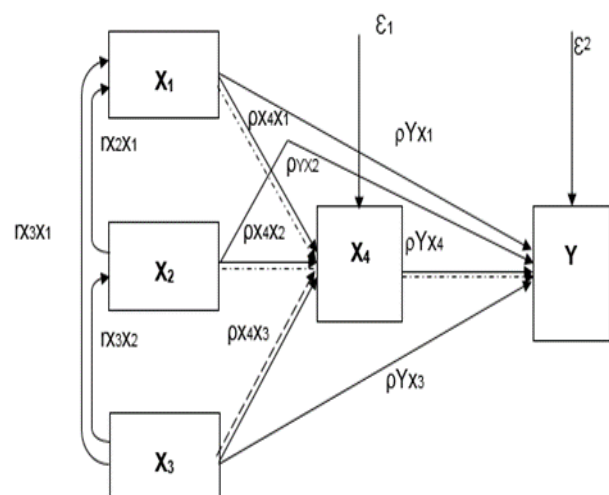


Figure 1. Conceptual framework

Results

The results of this frequency descriptive analysis are the primary data of the test result and physical fitness measurement (Y), the vital capacity of the lungs (X1), nutritional status (X2), Physical activity (X3), and exercise motivation (X4). The basic data in this research is further compared to its unit by using T_Skor so that the data becomes the next interval data can be used to analyze the data in full with the statistics approach and known maximum value, minimal, range, average, standard deviation, and median as well as the frequency distribution as presented in the table in the following:

Table 1. Distribution of research data

| Statistic | Variable | | | | | | | | | |
|-----------|----------------|----------------|----------------|----------------|-------|----------------|----------------|----------------|----------------|-------|
| | Male | | | | | Female | | | | |
| | X ₁ | X ₂ | X ₃ | X ₄ | Y | X ₁ | X ₂ | X ₃ | X ₄ | Y |
| N | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 |
| Mean | 52.93 | 53.70 | 54.20 | 54.03 | 55.77 | 49.73 | 50.63 | 50.90 | 51.70 | 53.57 |
| Std. Dev. | 3.46 | 3.37 | 4.08 | 4.18 | 3.94 | 3.52 | 3.55 | 3.73 | 4.26 | 4.18 |
| Range | 13 | 13 | 16 | 15 | 13 | 15 | 15 | 15 | 15 | 14 |
| Min | 49 | 50 | 49 | 49 | 53 | 45 | 46 | 45 | 46 | 50 |
| Max | 62 | 63 | 65 | 64 | 66 | 60 | 61 | 60 | 61 | 64 |
| Sum | 1588 | 1611 | 1626 | 1621 | 16.73 | 1492 | 1519 | 1527 | 1551 | 1607 |

According to table 1 can be described as follows: The results of the research on physical fitness data consisted of 30 samples of male obtained the highest score of 66 and the lowest score of 53 and data of 30 female samples obtained the highest score of 64 and the lowest score of 50. The results of the research on the vital lung capacity (X₁) data consisted of 30 samples of male obtained the highest score of 62 and the lowest score of 49 and data of 30 female samples obtained the highest score of 60 and the lowest score of 45. The results of the research on nutritional status data (X₂) consisted of 30 samples of male obtained the highest score of 63 and the lowest score of 50 and data of 30 female samples obtained the highest score of 61 and the lowest score of 46. The results of the study of the physical activity data (X₃) consisted of 30 samples of male obtained the highest score of 65 and the lowest score of 49 and data of 30 female samples obtained the highest score of 60 and the lowest score of 45. The results of the research on exercise motivation data consists of 30 samples of male obtained the highest score 64 and the lowest score of 49 and data of 30 female samples obtained the highest score 61 and the lowest score of 46.

Table 2. Recapitulation results of the test calculation of normality of research data

| No. | Variable | N | Male/Female | K-SZ _{hit} | Sig. (p) | Information |
|-----|---------------------------------------|----|-------------|---------------------|----------|-------------|
| 1 | Lung Vital Capacity (X ₁) | 30 | Male | 1.13 | 0.15 | Normal |
| | | | Female | 1.18 | 0.12 | Normal |
| 2 | Nutritional Status | 30 | Male | 1.56 | 0.21 | Normal |
| | | | Female | 1.11 | 0.16 | Normal |
| 3 | Physical Activity | 30 | Male | 1.20 | 0.11 | Normal |
| | | | Female | 0.88 | 0.41 | Normal |
| 4 | Motivation to Exercise | 30 | Male | 1.11 | 0.16 | Normal |
| | | | Female | 0.75 | 0.62 | Normal |
| 5 | Physical Fitness | 30 | Male | 1.70 | 0.07 | Normal |
| | | | Female | 1.29 | 0.08 | Normal |

Based on the tabulation that the price of Kolmogorov-Smirnov Z count (K-SZ_{count}) on the entire data group turned out to be greater than $\alpha = 0.05$. Thus, it can be concluded that the sample of male and female of this study came from normally distributed populations. Furthermore, after data on the influence of lung vital capacity, nutritional status, physical activity, and motivation to exercise on overall physical fitness are normally distributed, then it is continued with hypothesis testing. For more details can be explained in the following description.

Table 3. Recapitulation of the results of the research data hypothesis test calculation for male and female

| Model | Male/Female | R | R Square | t-test | Sig. |
|---------------------------------|-------------|-------------------|----------|--------|------|
| X ₁ *Y | Male | .917 ^a | .842 | 12.201 | .000 |
| | Female | .865 ^a | .748 | 9.114 | .000 |
| X ₂ *Y | Male | .904 ^a | .817 | 11.162 | .000 |
| | Female | .821 ^a | .674 | 7.608 | .000 |
| X ₃ *Y | Male | .845 ^a | .714 | 8.357 | .000 |
| | Female | .836 ^a | .698 | 8.053 | .000 |
| X ₄ *Y | Male | .924 ^a | .855 | 12.832 | .000 |
| | Female | .933 ^a | .870 | 13.713 | .000 |
| X ₁ * X ₄ | Male | .862 ^a | .743 | 9.005 | .000 |
| | Female | .845 ^a | .713 | 8.350 | .000 |
| X ₂ * X ₄ | Male | .846 ^a | .716 | 8.405 | .000 |
| | Female | .800 ^a | .640 | 7.062 | .000 |
| X ₃ * X ₄ | Male | .853 ^a | .727 | 8.633 | .000 |
| | Female | .802 ^a | .643 | 7.103 | .000 |
| X ₁ * X ₂ | Male | .978 ^a | .956 | 24.617 | .000 |
| | Female | .963 ^a | .928 | 18.993 | .000 |
| X ₂ * X ₃ | Male | .751 ^a | .564 | 6.014 | .000 |
| | Female | .820 ^a | .672 | 7.573 | .000 |
| X ₁ * X ₃ | Male | .782 ^a | .611 | 6.635 | .000 |
| | Female | .857 ^a | .735 | 8.815 | .000 |

Based on table 3 of hypothesis testing results, the ten hypotheses submitted showed a result that had a positive correlation. Descriptions of each of these hypotheses can be explained as follows:

The results of research on the hypothesis which states that physical fitness (Y) and vital lung capacity (X₁) has a significant positive correlation. the calculation results in the table of regression coefficient, obtained the value of $t_{count} = 12.201$ for male and 9.114 for female and $t_{table (0, 05, 30)} = 2.042$ with a significant level of 0.000 smaller than $\alpha = 0.05$, thus ($t_{count} > t_{table}$) means H_0 rejected, and H_1 accepted. From the results of these calculations it can be stated that the proposed hypothesis: lung vital capacity (X₁) contributing to physical fitness (Y) is accepted.

The results of research on the hypothesis which states that physical fitness (Y) and nutritional status (X₂) has a significant positive correlation. the result of t test calculation on the table of regression coefficient, obtained the value of $t_{count} = 11.162$ for male, 7.608 for female and $t_{table (0.05)} = 2.042$ with a significant level of 0.000 smaller than $\alpha = 0.05$, thus ($t_{count} > t_{table}$) means H_0 rejected, and H_1 accepted. From the results of these calculations it can be stated that the proposed hypotheses: nutritional status (X₂) contributes to physical fitness (Y) is accepted.

The results of research on the hypothesis which states that physical fitness (Y) through physical activity (X₃) has a significant positive correlation. the results of the t test

analysis, obtained the value of $t_{\text{count}} = 8.357$ for male and 8.053 for female and $t_{\text{table (0.05)}} = 2.042$ with a significant level of 0.000 smaller than $\alpha = 0.05$, thus ($t_{\text{count}} > t_{\text{table}}$) means H_0 rejected, and H_1 accepted. From the results of these calculations it can be stated that the proposed hypotheses: physical activity (X_3) contributes to physical fitness (Y) is accepted.

The results of research on the hypothesis which states that physical fitness (Y) through motivation to exercise (X_4) has a significant positive correlation. the results of the t test analysis, obtained the value of $t_{\text{count}} = 12.832$ for male and 13.713 for female and $t_{\text{table (0.05)}} = 2.042$ with a significant level of 0.000 smaller than $\alpha = 0.05$, thus ($t_{\text{count}} > t_{\text{table}}$) means H_0 rejected, and H_1 accepted. From the results of these calculations it can be stated that the proposed hypotheses: motivation to exercise (X_4) contributes to physical fitness (Y) is accepted.

The results of research on the hypothesis which states that the vital capacity of the lungs (X_1) through motivation to exercise (X_4) has a significant positive correlation. the result of t test calculation on the table of regression coefficient, obtained the value of $t_{\text{count}} = 9,005$ for male and 8,350 for female and $t_{\text{table (0.05)}} = 2,042$ with a significant level of 0.000 smaller than $\alpha = 0.05$, thus ($t_{\text{count}} > t_{\text{table}}$) means H_0 rejected, and H_1 accepted. From the results of these calculations it can be stated that the proposed hypotheses: vital capacity of the lungs (X_1) contributes to exercise motivation (X_4) is accepted. The results of this hypothesis analysis provided that the vital capacity of the lungs contributed to the exercise motivation. This research gives the meaning that if you want to improve exercise motivation then it can be done by increasing the vital capacity of the lungs.

The results of the research on hypotheses which states that the nutritional status (X_2) through exercise motivation (X_4) has significant positive correlation. the result of t test calculation on the table of regression coefficient, obtained the value of $t_{\text{count}} = 8,405$ for male and 7,062 for female and $t_{\text{table (0.05)}} = 2,042$ with a significant level of 0.000 smaller than $\alpha = 0.05$, thus ($t_{\text{count}} > t_{\text{table}}$) means H_0 rejected, and H_1 accepted. From the results of these calculations it can be stated that the proposed hypotheses: nutritional status (X_2) contributes to exercise motivation (X_4) is accepted.

The results of the research on the hypothesis which states that physical activity (X_3) through exercise motivation (X_4) has significant positive correlation. the results of the t test calculation on the table of regression coefficient, obtained the value of $t_{\text{count}} = 8.633$ for male and 7.103 for female and $t_{\text{table (0.05)}} = 2.042$ with the significant level of 0.000, thus ($t_{\text{count}} > t_{\text{table}}$), means H_0 rejected, and H_1 accepted. From the results of these calculations it can be stated that the proposed hypotheses: physical activity (X_3) contributes to exercise motivation (X_4) is accepted.

The results of the research on the hypothesis which states that vital capacity of the lungs (X_1) through the nutritional status (X_2) has a significant positive correlation. the calculation result of the regression coefficient above,

obtained the value of $t_{\text{count}} = 24.617$ for male and 18.993 for female and $t_{\text{table (0.05)}} = 2.042$ with a significant level of 0.001 smaller than $\alpha = 0.05$, thus ($t_{\text{count}} > t_{\text{table}}$), means H_0 rejected, and H_1 accepted. From the results of these calculations it can be stated that the proposed hypotheses: vital capacity of the lungs (X_1) contributes to the nutritional status of students of Jakarta 140 Junior High School (X_2) is accepted.

The results of the research on the hypothesis which states that nutritional status (X_2) through physical activity (X_3) has a significant positive correlation. the results of the t test calculation on the table of regression coefficient, obtained the value of $t_{\text{count}} = 4.483$ for male and 7.573 for female and $t_{\text{table (0,05;30)}} = 2.042$ with the significant level of 0.000, thus ($t_{\text{count}} > t_{\text{table}}$), means H_0 rejected, and H_1 accepted. From the results of these calculations it can be stated that the proposed hypotheses: nutritional status (X_2) contributes to the physical activity for students of Jakarta 140 Junior High School (X_3) is accepted. The results of this hypothesis analysis provide findings that nutritional status contributes to physical activity.

The results of the research on the hypothesis which states that vital lung capacity (X_1) through physical activity (X_3) has a significant positive correlation. the results of the test calculation was obtained the value of $t_{\text{count}} = 6.635$ for male and 8.815 for female and the $t_{\text{table (0,05;30)}} = 2.042$ with a significant level of 0.000 smaller than $\alpha = 0.05$, thus ($t_{\text{count}} > t_{\text{table}}$), means H_0 rejected, and H_1 accepted. From the results of these calculations it can be stated that the proposed hypotheses: vital lung capacity (X_1) contributes to the physical activity for students of Jakarta 140 Junior High School (X_3) is accepted.

Discussion

Based on the results of hypothesis testing about the influence of lung vital capacity, nutritional status, physical activity, and motivation to exercise on physical fitness of students of Jakarta 140 Junior High School, as for the following discussion:

The vital capacity of the lungs directly affects the physical fitness of students of Jakarta 140 Junior High School. The findings in this study are in line with the theoretical study presented earlier that good vital lung capacity will be able to demonstrate good achievement. Thus, it can be said that physical fitness may increase when observing the vital capacity of the lungs to improve physical fitness. Nutritional Status directly affects physical fitness in students of Jakarta 140 Junior High School. The findings in this study are in line with the theoretical study presented earlier that good nutritional status will support good achievement. Thus, it can be said that physical fitness can increase when supported with good nutritional status. Physical activities directly affect physical fitness in students of Jakarta 140 Junior High School. The findings in this study are in line with the theoretical study presented earlier that the influence of good physical activity will be able to

demonstrate good physical fitness. Thus, it can be said that physical fitness may increase when physical activity increases so that physical fitness will be higher.

Motivation to exercise direct influence on physical fitness in students from Jakarta 140 Junior High School. The findings in this study are in line with the theoretical study presented earlier that a good exercise motivation influence will be able to demonstrate good physical fitness. Thus it can be said that physical fitness can increase when the motivation to exercise increases so that physical fitness will be higher. The vital capacity of the lungs directly affects the motivation of exercising in students from Jakarta 140 Junior High School. This finding gives the meaning that if you want to improve exercise motivation then it can be done by increasing the vital capacity of the lungs. Nutrition Status directly affects the motivation to exercise in students from Jakarta 140 Junior High School. The results of this hypothesis analysis provide findings that nutritional status contributes to the motivation of exercising. These findings give meaning that if you want to improve exercise motivation then it can be done through improved nutritional status.

Physical activities directly affect the motivation to exercise in students from Jakarta 140 Junior High School. The results of this hypothesis analysis provide findings that physical activity contributes to the motivation to exercise. These findings give meaning that if you want to improve exercise motivation then it can be done through increased physical activity. The vital capacity of the lungs through the motivation of exercising simultaneously directly affect physical fitness in students of Jakarta 140 Junior High School. The results of this hypothesis analysis provide findings that the vital capacity of the lungs contributes to nutritional status. This finding gives the meaning that if you want to improve the nutritional status of students from Jakarta 140 Junior High School can observe the vital capacity of lung. Nutritional Status through the motivation to exercise simultaneously directly affect physical fitness in the students of Jakarta 140 Junior High School. This is in line with the theory of each independent variable that was explained in the previous section. This finding gives the meaning that if you want to improve the nutritional status of students of Jakarta 140 Junior High School can be done through an increase in physical activity.

Physical activity through the motivation of exercising simultaneously directly affect physical fitness in students of Jakarta 140 Junior High School. This is in line with the theory of each independent variable that was explained in the previous section. These findings give the meaning that if you want to increase the physical activity of students of Jakarta 140 Junior High School can be done through the increase in the vital level of lung.

Nutritional status is more determined by healthy living behavior, nutritious food and can be interpreted as the amount and food consumed by a person which is an indicator of their nutritional status (Nopembri et al., 2022; Nugroho et al., 2022). The energy needed for physical

performance is obtained from the metabolism of foodstuffs consumed daily, so that food or nutrients are one of the determinants of the quality of one's physical performance and growth (Nugorho et al., 2021; Pratama et al., 2022). Good physical health will affect student learning activities, students will be more enthusiastic about participating in the learning process and always ready to accept the material provided by the teacher (Pratama et al., 2024). Someone who has physical health means the capacity to study or work becomes better. All activities or physical activities carried out by students affect the level of physical health they have. With a person's health, his mindset can develop well, and can stimulate the brain well too, because the motor nerves function optimally. According to Riyana et al. (2023), the factors that affect physical health, one of which is nutrition or food. With regard to nutritional status which includes the fulfillment of food nutrition with the ability to carry out daily tasks that require physical health, it can be said that nutritional status has a relationship with physical health. In this regard, the relevance of which is very visible from the value of nutritional adequacy for the body, then based on the usefulness that can be obtained from food nutrients is to fulfill nutrients for the body, namely as a source of energy, building material and regulatory material (Saifu et al., 2021).

Conclusions

Based on the results of the research and analysis of data that has been done, as well as referring to the discussion, the overall hypothesis submitted is acceptable, thereby concluded that there is a vital influence of lung capacity, nutritional status, physical activity, and motivation to exercise on the physical fitness of students from Jakarta 140 Junior High School.

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Conflict of interest

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