Analysis of physical fitness in students: a comparative study based on social status

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Authors' contribution:
A. Conception and design of the study; B. Acquisition of data; C. Analysis and interpretation of data; D. Manuscript preparation; E. Obtaining funding


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Abstract

Background and Study Aim. Physical fitness serves as a significant indicator of an individual's health and overall well-being. This research aims to analyze students' physical fitness by conducting a comparative study based on social status. Physical fitness was measured as an indicator of children's health and well-being.

Material and Methods. Quantitative descriptive research using survey method. This study involved low-grade students from two elementary schools, namely Mujahidin Elementary School and State Elementary School 16 Rasau Jaya, which have different social status. The sampling method used purposive sampling technique, with a total sample of 40 students from each school. Physical fitness data collection was conducted using the Indonesian Physical Fitness Test. Analysis was assisted using the SPSS 26 application.

Results. The results showed a significance value of 0.538 > 0.05 that there was no significant difference in physical fitness between students from both schools based on social status. Although there were variations in the mean physical fitness scores, the differences did not reach the level of statistical significance.

Conclusions. This study contributes to the understanding of physical fitness differences based on social status among low-grade students. The implications of the results of this study can be used for the development of more focused intervention programs to improve physical fitness, especially among students with economic and educational challenges.

Introduction

Physical fitness serves as a significant indicator of an individual's health and overall well-being. The comprehension of factors influencing physical fitness, particularly among lower-class learners.
considering their social status, is paramount (Candra et al., 2023; Utesch et al., 2018). Social status encompasses various dimensions, including economic background, education, and accessibility to healthcare facilities (Garzia et al., 2019). Examining the disparities in physical fitness stemming from these social inequities not only holds relevance for the development of public health policies but also offers profound insights into the societal elements impacting the health of young individuals (Goodyear et al., 2019).

The connection between physical fitness and health is intimate. Lower physical fitness levels in students render them susceptible to illnesses and diminish their overall health (Nurcahyo, 2015). Adequate health and nutritional provisions play a crucial role in facilitating smooth growth and development of the brain organs, thereby shielding children from diseases. In developing countries, nutritional imbalances such as undernutrition and obesity often coexist. As per the 2018 Riskesdas data, updated every five years, nutritional status in Indonesia for children aged 5-12 years reveals 2.4% are underweight, while 9.2% are overweight (Ernawati et al., 2019). Undernutrition and overweight frequently give rise to health complications (Rachmi et al., 2017).

Lower-class students often encounter distinct challenges in maintaining their physical fitness (Diamond, 2015). Economic constraints may impede their access to sports facilities, and parents’ education levels can influence their awareness of the importance of a healthy lifestyle (Rodrigues et al., 2019). The question is: to what extent can this social status be an indicator of differences in the physical fitness levels of lower-class learners?

Research indicates that the socio-economic conditions of learners' parents exhibit considerable diversity, and the learners' socio-economic status significantly impacts endeavors to enhance physical fitness (Garzia et al., 2019). Physical fitness is influenced by a range of factors, encompassing both internal and external elements. Internal factors include permanent aspects present in an individual's body, such as genetics, age, and gender, while external factors involve physical activity, the environment, and smoking habits (Rohmatin & Wulan, 2019).

This study was conducted to gain a comprehensive understanding of the disparities in physical fitness among lower-grade learners based on their social status. By exploring these factors, areas requiring special attention can be identified to enhance the health and fitness of young people facing economic and educational challenges (Limanskaya et al., 2020). The primary objective is to analyze and comprehend how the social status of lower-class learners may impact their physical fitness levels. Consequently, the results are anticipated to lay the groundwork for designing more effective and socially just interventions to enhance physical fitness among lower-class learners.

This research holds relevance in the context of advancing public health, particularly among lower-class learners. A nuanced understanding of the differences in physical fitness resulting from social status allows stakeholders to develop targeted and accessible programs for improving the health and fitness of learners in this socio-economic segment. By spotlighting disparities in physical fitness based on social status, this study aims to make a positive contribution to the overarching endeavor to enhance the well-being and health of lower-class learners.

Materials and Methods

Participants.

The study population consisted of third-grade students from both reputable school groups and regular schools in the urban schools of Elementary School Mujahidin and Elementary School 16 Rasau Jaya, reflecting diverse social statuses. Purposive sampling was used to select the sample so that 40 students were obtained, namely 20 students of Mujahidin Elementary School and 20 students of Elementary School 16 Rasau Jaya.

Research Design.

The design of this study was to compare physical fitness levels in different social circles. This research is descriptive quantitative with data collection techniques using tests and measurements.
Descriptive research is research that describes or shows an event that takes place at the time of the research (Rubiyatno et al., 2022).

The technique used in this study is the test and measurement of the Indonesian Physical Fitness Test (TKJI) in the form of several test items, namely vertical jump using a wall, wooden ruler and chalk, sit ups using a stopwatch, hanging elbow bend (pull-up) using a pull-up bar, 30 meter sprint and 600 meter run stopwatch. This study aims to determine the comparison of physical fitness levels in low grade elementary school students in all social status circles.

Statistical analysis.

Data analysis using quantitative descriptive analysis. Data analysis in this study also used normality, homogeneity and t tests. This physical fitness category must add up all the values of the five test items listed and then match them with the 5 tests above. Then the test results that have been converted in the norm of categorization are descriptive analysis through percentage. Data analysis is assisted using the SPSS 26 application.

Results

This research on the physical fitness of elementary school students at Mujahidin and SDN 16 Rasau Jaya, can be seen in the following table:

Table 1. Physical Fitness Results of Mujahidin Elementary School

<table>
<thead>
<tr>
<th>Value</th>
<th>Classification</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>22 – 25</td>
<td>Very good</td>
<td>0</td>
<td>0 %</td>
</tr>
<tr>
<td>18 – 21</td>
<td>Good</td>
<td>2</td>
<td>10 %</td>
</tr>
<tr>
<td>14 – 17</td>
<td>Fair</td>
<td>12</td>
<td>60 %</td>
</tr>
<tr>
<td>10 – 13</td>
<td>Poor</td>
<td>6</td>
<td>30 %</td>
</tr>
<tr>
<td>5 – 9</td>
<td>Very poor</td>
<td>0</td>
<td>0 %</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>20</td>
<td>100 %</td>
</tr>
</tbody>
</table>

According to the data in the table above, the descriptive percentage results in the Indonesian physical fitness test for mujahidin students are 2 students in the good category with a percentage of 10%, 12 students in the moderate category with a percentage of 60%, and 6 students in the less category with a percentage of 30%. Based on these findings, it can be inferred that mujahidin elementary school kids have a modest degree of physical fitness. The results can be seen in table 1.

Table 2. Physical Fitness Test Results of State Elementary School 16 Rasau Jaya

<table>
<thead>
<tr>
<th>Value</th>
<th>Classification</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>22 – 25</td>
<td>Very good</td>
<td>0</td>
<td>0 %</td>
</tr>
<tr>
<td>18 – 21</td>
<td>Good</td>
<td>0</td>
<td>0 %</td>
</tr>
<tr>
<td>14 – 17</td>
<td>Fair</td>
<td>14</td>
<td>70 %</td>
</tr>
<tr>
<td>10 – 13</td>
<td>Poor</td>
<td>6</td>
<td>30 %</td>
</tr>
<tr>
<td>5 – 9</td>
<td>Very poor</td>
<td>0</td>
<td>0 %</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>20</td>
<td>100 %</td>
</tr>
</tbody>
</table>

According to the data in the table above, the descriptive percentage results in the Indonesian physical fitness test of 16 Rasau Jaya public elementary school students are 14 in the moderate category with a percentage of 70%, and 6 in the less category with a percentage of 30%. Based on these findings, it can be concluded that the physical fitness level of Elementary School 16 Rasau Jaya students is moderate. The results can be seen in table 2.

Based on the results in table 3, the normality test with Shapiro-Wilk shows a significance value (p > 0.05) which means that the data is normally distributed so that it can be continued using the t test. Furthermore, the data from the homogeneity test results have a significance of 0.208 > 0.05, it can be said that the data is homogeneous. The results can be seen in table 4.
The results of the independent sample test show a significance value of 0.538 > 0.05 based on these results it can be concluded that there is no significant difference in physical fitness in students of Elementary School 16 Rasau Jaya and Mujahidin. These results also provide evidence that physical fitness based on parental social status shows no difference. This result can be seen in table 5.

Table 3. Shapiro-Wilk Test

<table>
<thead>
<tr>
<th>Group</th>
<th>Statistic</th>
<th>df</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Fitness</td>
<td>Elementary School 16 Rasau Jaya</td>
<td>0.852</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>Elementary School Mujahidin</td>
<td>0.939</td>
<td>20</td>
</tr>
</tbody>
</table>

Table 4. Homogeneity Test

<table>
<thead>
<tr>
<th>Result</th>
<th>Levene Statistic</th>
<th>df1</th>
<th>df2</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Fitness</td>
<td>Based on Mean</td>
<td>1.637</td>
<td>1</td>
<td>38</td>
</tr>
<tr>
<td></td>
<td>Based on Median</td>
<td>0.917</td>
<td>1</td>
<td>38</td>
</tr>
<tr>
<td></td>
<td>Based on Median and with adjusted df</td>
<td>0.917</td>
<td>1</td>
<td>36,339</td>
</tr>
<tr>
<td></td>
<td>Based on trimmed mean</td>
<td>1,358</td>
<td>1</td>
<td>38</td>
</tr>
</tbody>
</table>

Table 5. Independent Samples Test

<table>
<thead>
<tr>
<th>Result</th>
<th>Variants</th>
<th>F</th>
<th>Sig.</th>
<th>t</th>
<th>df</th>
<th>Sig. (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Fitness</td>
<td>Equal variances assumed</td>
<td>1.637</td>
<td>0.208</td>
<td>-0.622</td>
<td>38</td>
<td>0.538</td>
</tr>
<tr>
<td></td>
<td>Equal variances not assumed</td>
<td>-0.622</td>
<td>36,289</td>
<td>0.538</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The results in table 6 provide information that the mean value of Mujahidin Elementary School (14.90) is greater than Elementary School 16 Rasau Jaya (14.45). However, it should also be understood that this difference is not much, so these results can also provide information in the same category.

Table 6. Descriptive Results of Physical Fitness

<table>
<thead>
<tr>
<th>Results</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Upper Bound</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elementary School 16 Rasau Jaya</td>
<td>20</td>
<td>14,4500</td>
<td>2,52305</td>
<td>15,6308</td>
<td>10,00</td>
<td>17,00</td>
</tr>
<tr>
<td>Elementary School Mujahidin</td>
<td>20</td>
<td>14,9000</td>
<td>2,02355</td>
<td>15,8470</td>
<td>12,00</td>
<td>20,00</td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
<td>14,6750</td>
<td>2,26894</td>
<td>15,4006</td>
<td>10,00</td>
<td>20,00</td>
</tr>
</tbody>
</table>

Figure 1. Descriptive Results of Elementary School 16 Rasau Jaya and Mujahidin
Discussion

This study aims to determine differences in physical fitness in elementary school students based on parental social status. The findings indicated that the average score for Mujahidin Elementary School was 14.90, and for Elementary School 16 Rasau Jaya, it was 14.45. However, it is essential to note that the difference is not substantial. The t-test results also demonstrate that there is no statistically significant difference. In addition, both research results show the same physical fitness which is in the fair category. These results are different from previous studies which found that students' physical fitness was still in the low category (Pratiwi et al., 2020). Therefore, it is necessary to design the right exercise program so that physical fitness increases.

Several studies provide evidence that physical fitness can be improved through gymnastics (Elysa Agustika et al., 2021; Fitri et al., 2020; Gunawan et al., 2015; Sujoko & Saputra, 2021). Various benefits of sports activities can be applied to improve fitness (Chen et al., 2018; Cocca et al., 2020; Kljajević et al., 2022). Elementary school students have high activity in daily life so that physical fitness is very useful, physical fitness at the age of elementary school children greatly supports the development of children so that good physical fitness is needed so that the physical condition of children remains stable and maintained (Rivai et al., 2022). Physical fitness is one component of physical condition so that if training is done from elementary school age it will be better for future achievements (Aprilianto & Fahrizqi, 2020).

A study says poor physical fitness is influenced by several factors including the environment, nutrition, facilities and infrastructure and knowledge (Jamaluddin 1 & Dan, 2022). In addition, the role of sports teachers in schools is very important to help support the achievement of students' physical fitness (Mashud et al., 2024). In addition, facilities and infrastructure at school greatly influence the success of physical fitness (Faishal Arindra Yahya et al., 2023). Physical education sports and health is one of the subjects in the elementary school curriculum, with this learning aiming to improve physical, mental, emotional development with efforts to achieve a healthy life (Fitriady et al., 2020; Sastro Desmianto Ginting, 2022).

Research conducted by Armen, (2017) states in his research that in everyday life the motion of running, jumping that exists in physical fitness seems to describe a person's vibrant, happy, and creative life. In other words, a fit person is one who can create his work positively in the future (Griban et al., 2020). Physical fitness is very important for someone to have, especially during elementary school because it is still in its growth period (Ananda & Amra, 2023).

Furthermore, good physical fitness will increase concentration and the emergence of creative and innovative ideas and when doing daily activities without feeling excessive fatigue (Singingi et al., 2017). Based on some of the previous research above, physical fitness is very important for someone to have in order to produce positive things. After conducting physical fitness research at State Elementary School 16 Rasau Jaya and Mujahidin Elementary School, there were no differences in physical fitness based on the social status of parents.

Conclusion

Through a comparative study based on social status, it can be concluded that the analysis of physical fitness in university students does not show significant differences between groups with different social status. Although there were variations in the physical fitness data, the differences did not reach the level of statistical significance. These results indicate that social status factors, which include economic and educational backgrounds, did not significantly affect the physical fitness levels of the university students who were the subjects of the study. Nonetheless, it is important to note that physical fitness remains an important aspect of monitoring and coaching students' health regardless of differences in social status. This study can serve as a basis for the implementation of physical fitness programs on campus that are inclusive and accessible to students from various social backgrounds. Further implications involve the need for a holistic approach in improving the well-
being and physical fitness of university students, without leaving out groups with a certain social status.

Acknowledgments

The researchers express their gratitude to Mujahidin Elementary School and State Elementary School 16 Rasau Jaya. Special appreciation goes to the teachers and students involved in sports who willingly participated in this study until its completion.

Conflict of Interest And Funding

There is no conflict of interest.

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