Bravo's: Journal of Physical Education and Sport Science
Volume 13 Issue 1, March 2025, pp: 166-177
E-ISSN: 2597-677X; P-ISSN: 2337-7674
DOI: http://dx.doi.org/10.32682/bravos.v13i1/80

Assessment of physical fitness of 12-year-old elementary children in Sumenep district through Tes Kebugaran Pelajar Nusantara (TKPN)

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Abstract

Physical fitness in primary school children is an important aspect in supporting physical development and long-term health. This study aimed to evaluate the physical fitness level of 12-year-old students in Sumenep district using TKPN. This study was conducted in a descriptive quantitative manner involving 134 students selected through purposive sampling. The research instruments included measurements of Body Mass Index (BMI), V Sit and Reach, Sit-ups, Squat Thrust, and Progressive Aerobic Cardiovascular Endurance Run (PACER) Test. The data obtained were analyzed descriptively based on the physical fitness categories established by TKPN. The results showed that the majority of students were at a low level of physical fitness. A total of 83% of students had a low level of cardiorespiratory endurance based on the PACER test results, while 75% of students showed low muscle strength in the Squat Thrust test. In addition, 69% of students had poor abdominal muscle strength on the Sit-up test, and 56% of students showed low flexibility on the V Sit and Reach test. No students achieved the "Good" or "Excellent" category in the overall physical fitness components measured. Based on the results of the study, it was concluded that although 72% of students fell into the undernourished category based on Body Mass Index (BMI), this was not matched by an adequate level of physical fitness, where only 2.5% of students were in the sufficient category. Therefore, it can be concluded that the application of TKPN to students at SDN Pajagalan 1, SDN Kepanjin, SDN Karangduak 2 and SDN Bangselok in Kota Sumenep Sub-district, East Java Province, overall shows a level of physical fitness that is in the moderate category.

Keywords: *Fitness, Child, TKPN.*

Received: 05 03 2025 Revised: 12 03 2025 Accepted: 22 03 2025

Authors' Contribution: A – Conceptualization; B – Methodology; C – Software; D – Validation; E - Formal analysis; F – Investigation; G – Resources; H - Data Curation; I - Writing - Original Draft; J - Writing - Review & Editing; K – Visualization; L – Supervision; M - Project administration; N - Funding acquisition

INTRODUCTION

Physical fitness is an important aspect of a child's development, particularly during the primary school years, which is a critical period in laying the foundation for long-term health. Children at the age of 12 years are in a transitional period towards adolescence, where the need for physical activity increases in order to support optimal physical and mental development. The importance of physical fitness can be seen through several researches, one of them being the TKPN (Tes Kebugaran Pelajar Nusantara) (Moch. Fajaryanto, Reo Prasetiyo Herpandika, & Budiman Agung Pratama, 2022)

Therefore, in this study we would like to evaluate musculoskeletal fitness of 12-year-old primary school students in Sumenep District using the TKPN. This work won't be carried out without the need to be addressed first in order to improve fitness among the Indonesian kids, especially kids that lives in a poor areas, as some town such as Sumenep. According to

preliminary data, low to moderate fitness group dominate the population of students who were studied, which may affect their academic and health outcomes in the future (Hidayatullah & Wisnu, 2016). Among 12 year old students in Sumenep district, a majority may have poor physical fitness, particularly in descriptive statistics of muscle strength, cardiovascular endurance and flexibility, the analysis suggests. Preliminary findings and related literature suggest that rural children have limited access to proper fitness facilities(Hadi, T., & Kurniawan, 2021; Wijaya, 2018).

This study was created amid the limited specific data regarding the physical fitness profile of schoolchildren in Sumenep, considering unique social and environmental conditions. Geographically, Sumenep has mainland and island areas, so the access of children to sports facilities and physical activity is still relatively limited. Geography and access to recreational spaces play crucial roles in children's level of physical activity (Smith et al., 2020). In low-resourced regions, children have less opportunity to participate in structured physical activity, which has a negative effect on their physical fitness (Krebs & Voss, 2018). Moreover, economic and social problems in rural areas of Indonesia make the situation more difficult because they assume that access to good sporting programs and decent facilities is limited (Ariffin et al., 2019). Under such conditions, it becomes imperative to investigate how geographical and socio-economic limitations can affect the physical fitness levels of children in rural and island areas, such as Sumenep (Kasim et al., 2021).

This study also attempts to provide a clear picture of children physical fitness in Sumenep. This list will help schools and communities to develop better fitness programs. We selected the TKPN as the instrument because it is the only tool specifically developed to assess physical fitness of Indonesian children taking into account the local condition. The TKPN includes various areas of fitness, including cardiorespiratory endurance, muscular strength, and flexibility. All of these are highly relevant to the physical condition of students in Indonesia. (Sehaja, Saputra, & Budiati, 2023; Wiriawan, Wibowo, & Kaharina, 2023).

Good physical fitness in childhood is essential for the prevention of future health problems such as obesity, diabetes and heart disease. Physically active children also tend to perform better in school because physical activity improves concentration and cognitive performance (Hiroshi, 2024; Komarudin et al., 2023). Therefore, it is important to know the physical fitness level of the students. This will help you to provide appropriate interventions.

This study is also important for evaluating the effectiveness of the TKPNs as a tool for measuring physical fitness in Indonesia. Although the TKPN has been widely used, this study will provide district-specific empirical data that can be used to improve the tool to make it more relevant to local conditions in Sumenep district. Therefore, this study aims not only to evaluate the physical fitness status of students but also to identify the factors that influence this fitness

METHOD

This research is quantitative descriptive research. Descriptive research is a type of research aimed at systematically describing an object's condition(Suharsimi, 2016). The variables used in this study were TKPN and fitness level. Considering the distance between the residence of the researcher and the research site, this study was conducted in SDN Pajagalan 1, SDN Kepanjin, SDN Karangduak 2, and SDN Bangselok, all of which are located in Kota Subdistrict, Sumenep Regency, East Java. The sample size of this study was 134 students. This study used purposive sampling technique, selecting each student based on age criteria, 12 years. The instrument used in this study is based on the TKPN issued by the Ministry of Youth and Sports, through the Deputy of Education Sports Administration, Deputy of Sports Promotion in 2022. This test includes several components, namely Body Mass Index (BMI), V Sit and Reach, Sit-up or lying down, Squat Thrust, and Progressive Aerobic Cardiovascular Endurance Run (PACER) Test. This study collected data through tests and measurements. Observing method was also used to explain anddescribe the relationship between independent and dependent variables in this study.

RESULT

The following is a discussion of the test results consisting of 5 items, namely Body Mass Index (BMI), Pacer Test, Squat Thrust Test, Sit Up Test, and V Sit and Reach Test, based on data from 134 students.

Body Mass Index (BMI)

Table 1. Body Mass Index (BMI)

Nutrition Status Category	Threshold (Z-Score)	Frequency	Percentage (%)
Undernourished	3SD sd < 2 SD	97	72%
Good Nutrition	2SD sd + 1 SD	29	22%
Over Nutrition	+ 1 SD sd +2 SD	8	6%
Obesity	> + 2 SD	0	0%
Total		**134**	**100%**

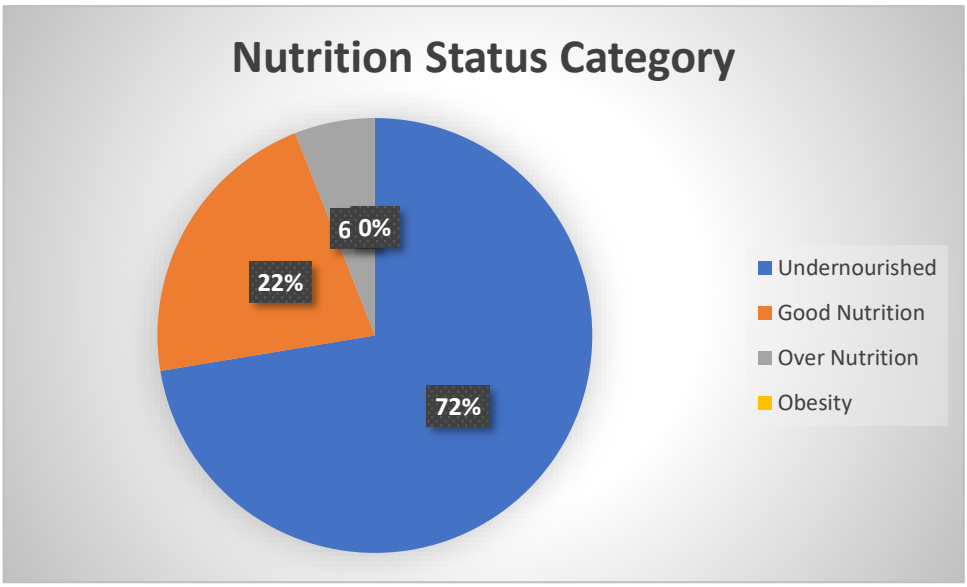

Figure1 : Percentage of BMI

Most of the students were in the Undernourished category (72%) with a frequency of 97 students. As many as 29 students (21%) were in the Good Nutrition category. Only a few students were in the Over Nutrition category, 8 students (5.97%), and no students were in the Obesity category. These data show that most students have a nutritional status below the expected average.

Pace Test

Table 2. Pacer Test

Category	Frequency	Percentage (%)
Very Low	2	1%
Low	112	84%
Fair	20	15%
Good	0	0%
Excellent	0	0%
Total	**134**	**100%**

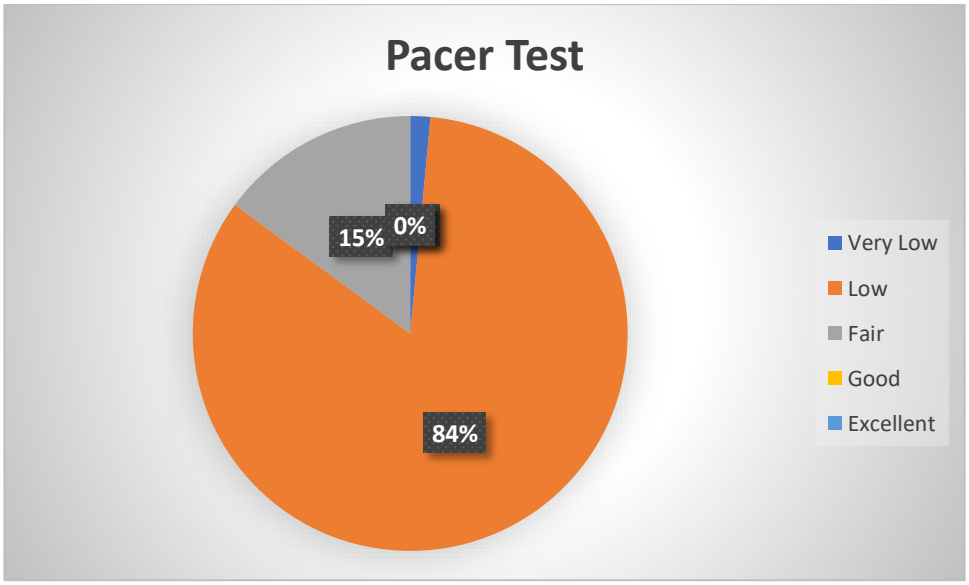

Figure 2. Percentage of Pacer Test

Most students had test results in the Low category, as many as 112 students (83%). Fair was only achieved by 20 students (14%), and no one reached the Good or Excellent category. These results indicate that the cardiorespiratory fitness of most students is at a level that needs improvement.Tes Squat Thrust

Table 3. Squat Thrust Test

Category	**Frequency**	**Percentage (%)**
Very Low	8	6%
Low	101	75%
Fair	25	19%
Good	0	0%
Excellent	0	0%
Total	**134**	**100%**

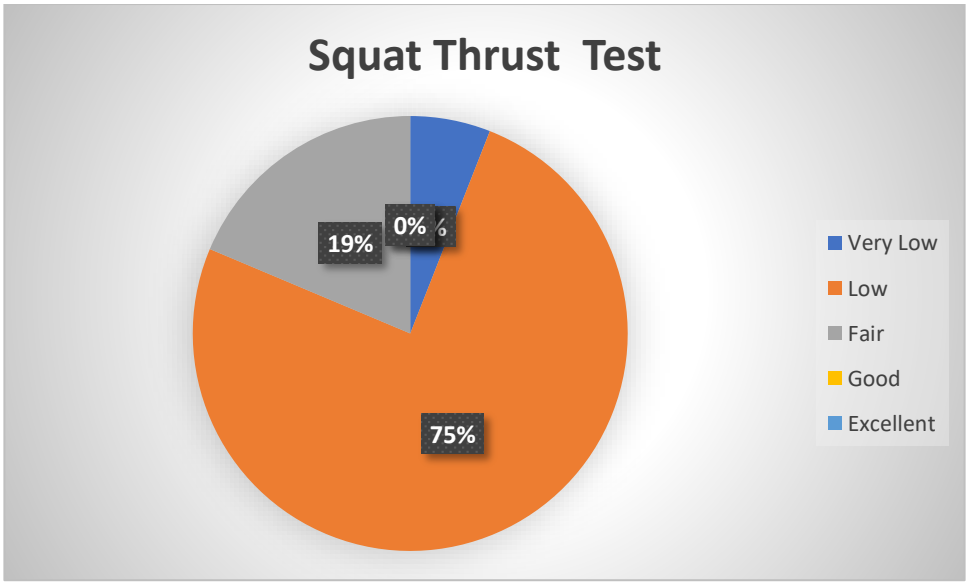

Figure 3. Percentage of Squat Thrust Tes

Squat thrust test results, where the majority of students are in the Low category with a frequency of 101 students (75%). Fair was achieved by 25 students (18%), while no students achieved the Good or Excellent category. This indicates that students' muscle strength and endurance also need to be improved.

Tes Sit Up

Table 4. Sit Up Test

Category	Frequency	Percentage (%)
Very Low	0	0%
Low	93	69%
Fair	37	28%
Good	4	3%
Excellent	0	0%
Total	**134**	**100%**

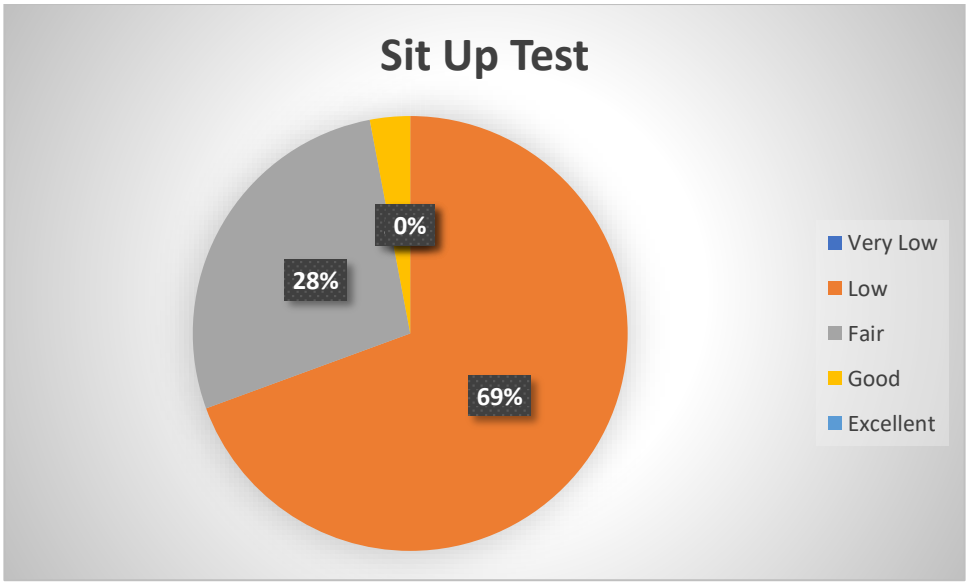

Figure 4. Percentage of Sit Up Test

In this sit up test, most students were in the Low category, namely 93 students (69%), with 37 students (27%) in the Fair category, and 4 students (2.98%) who reached the Good category. There were no students in the Excellent category, so abdominal muscle endurance also showed less than optimal results in most students.

V Sit and Reach Test

Table 5. V Sit and Reach Test

Category	Frequency	Percentage (%)
Very Low	9	7%
Low	76	57%
Fair	49	37%
Good	0	0%
Excellent	0	0%
Total	**134**	**100%**

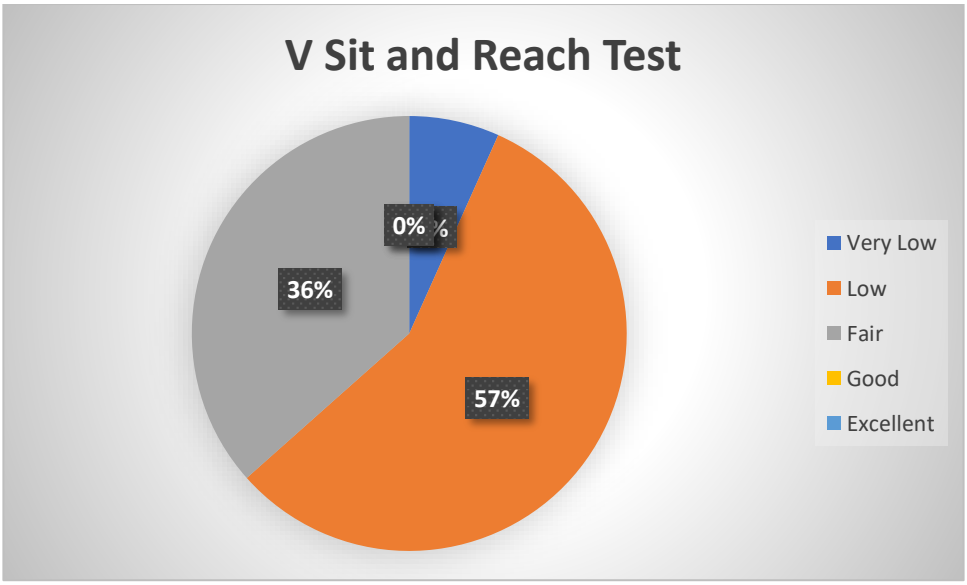

Figure 5. Percentage of V Sit and Reach test

In this flexibility test, 76 students (56%) were in the Low category, while 49 students (36%) reached the Fair category. A total of 9 students (6.71%) were in the Very Low category, and none reached the Good or Excellent category. These results indicate that the flexibility of most students still needs to be improved to achieve better results.

DISCUSSION

This study's results prove that 12 year-old elementary school students from Sumenep district physical fitness levels is still relatively low, where most of the respondents based on TKPN (Torres Physical Fitness Test), able can only be categorized into the category of poor fitness. These results are very important for the condition of physical fitness of children that live in rural areas and small towns in Indonesia in general, that has become an issue in a pervious research and public health policy. While this sounds good on paper, there is a wide gap between government-initiated fitness programs and their actual delivery.

Various contextual factors contribute to the low levels of physical fitness among children in Indonesia, especially in rural contexts, and these include a limited availability of sports facilities, low participation rates in regular physical activities, and lack of awareness of the importance of physical fitness. Insufficient access to adequate sports facilities in both rural and urban schools has been shown to be a significant contributing factor to poor physical fitness (Black, Johnston, Propper, & Shields, 2019) This trend aligns with the finding of the current study with the majority of students showing poor results in all the different fitness components assessed.

Recent scientific debates have also underlined the key function of schools in enhancing students' physical fitness through physical education and sports programs. TKPN was used as a tool to measure physical fitness but the study shows that not the implementation of a sustainable programme in schools. Numerous studies have highlighted the role of physical education in promoting physical fitness among students, but the impact of physical education is often compromised due to lack of resources, inadequate teacher training, and lack of structured programmes designed in the curriculum (López et al., 2020; Telford et al., 2019). Launch of physical fitness tests like TKN alone has no added value without the follow-up by a proper physical education curriculum (Hardman, 2021). In addition, studies have shown that schools with well-structured physical education programs have more engaged students and better fitness outcomes (Zhang et al., 2020). In addition, policy and implementation research indicates that schools frequently experience challenges with the logistics of maintaining these programmes due to limited budgets and academic pressures (Janssen et al., 2020). Therefore, despite the use of fitness measurement tools such as TKPN representing a step towards creating a more exercise-driven culture, the need for systematic, consistent, and accessible physical activity opportunities is required to elicit long-term fitness improvements in students (Lloyd et al., 2021).

In addition, the results of this study also offer a unique chance to critically assess scientific findings from earlier studies. The Traditional game itself could develop the children's physical fitness and gross motor skills (Qomariah & Hamidah, 2022). The fact that the TKPN has been implemented, but the results were not meeting the expectations, indicated a low level of physical fitness students. It might be that fitness programmes are not adapted to local needs and conditions in the area. The geographical environment in The Sumenep district is not limited only to the mainland, but also to several remote islands, which means that a more specific or targeted fitness strategy is needed to achieve effective results.

Importantly, the findings of the present study also question some assumptions in the current literature. For example, some studies have assumed that national fitness programmes such as TKPN are sufficient to improve students' overall physical fitness. However, this study shows that fitness programmes such as TKPN may not deliver the expected results without infrastructural support, active student participation and increased community awareness. This suggests that the approach used by the Government in developing fitness policies in schools needs to re-evaluated, and possibly revised.

Scientifically, the results of this study are also relevant to (Bakhtiar, Famelia, Syahputra, Oktavianus, & Goodway, 2020; Jacqueline D, Famelia, & Bakhtiar, 2014)theory of childhood

physical fitness, which emphasises the importance of structured and sustained physical activity in developing children's motor skills and physical fitness. This theory emphasises that in the absence of a regular and well-structured programme of physical activity, children will not achieve optimal physical development, which appears to be relevant to the findings of this study. Although the TKPN has been implemented, the lack of continuity and consistency in the implementation of the programme may be one of the reasons why the physical fitness of the students in the Sumenep is still relatively low.

Overall, this study provides important insights into the physical fitness of children in rural Indonesia and challenges some of the assumptions in existing fitness research and policy. The findings highlight the importance of a more targeted and locally specific approach to physical fitness. In addition, the study suggests the need to evaluate and improve the implementation of school-based fitness programmes in order to be more effective in improving the health and physical fitness of children in Indonesia..

CONCLUSIONS

Based on the results of the study, it was concluded that although 72% of students were in the undernourished category based on body mass index (BMI), this was not matched by an adequate level of physical fitness, where only 2.5% of students were in the sufficient category. Therefore, it can be concluded TKPN to students in SDN Pajagalan 1, SDN Kepanjin, SDN Karangduak 2, and SDN Bangselok in the sub-district of sumenep, East Java, as a whole shows the level of physical fitness that is in the sufficient category.

ACKNOWLEDGMENTS

The authors would like to thank the Ministry of Education, Culture, Research and Technology (Kemendikbudristek) for funding support through the 2024 research grant program. This support greatly contributed to the implementation and completion of this research.

The authors also express their appreciation to the Institute for Research and Community Service (LPPM) of STKIP PGRI Sumenep for the guidance, facilitation and administrative support provided during the research process. The active role of both institutions is very valuable in supporting the smoothness and quality of the results of this research.

Finally, the author hopes that the results of this research can make a significant contribution to the development of science and practical applications in related fields.

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