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Original article

Physical Fitness Levels Based on the 12-Minute Running Test in Medical Undergraduate Cadets at the Republic of Indonesia Defense University, Cohort 4 of the Year 2023

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ABSTRACT

Objective: Physical fitness plays a critical role in maintaining the health and performance of medical undergraduate students, particularly at the Republic of Indonesia Defense University (RIDU), where academic studies intersect with military training. This study aims to describe the physical fitness levels of medical undergraduate cadets based on the results of the 12-minute running test (Cooper Test) and their self-reported physical activity levels using the Global Physical Activity Questionnaire (GPAQ).

Methods: We employed a descriptive survey research method. The study included 72 respondents from the 2023 cohort 4 student population.

Results: Physical Activity Levels: The majority of respondents reported a heavy level of physical activity (87.5%). Physical Fitness Levels: Overall, respondents demonstrated a sufficient level of physical fitness (73.6%). Gender and Age: No significant differences were observed in the distribution of physical fitness levels based on gender or age.

Conclusion: Most cadets enrolled in undergraduate medical study programs at RIDU exhibit an adequate level of physical fitness.

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INTRODUCTION

Physical fitness plays a crucial role in maintaining an individual's health and overall performance (Mahindru et al., 2023). For aspiring doctors, understanding and maintaining physical fitness are essential due to the demands of stamina and body resilience in carrying out their profession. At the Republic of Indonesia Defense University (RIDU), cadet students in the Medical Undergraduate Program bear significant academic and military training responsibilities. Therefore, assessing the level of physical fitness is a primary concern to ensure that these students are prepared to face future challenges.

The Type "A" Physical Fitness Test, or the 12-minute run test, is a common method used to measure physical fitness (Jasmani, 2019; Markas Besar TNI, 2012; Pertahanan & Indonesia, 2014). This test not only assesses cardiorespiratory endurance but also the body's endurance over a relatively extended period (Astuti et al., 2023; Cooper, 1968). The Medical Undergraduate Program at RIDU, particularly in Cohort 4 of the year 2023, requires an evaluation of the cadet's physical fitness level as part of monitoring their progress.

In addition to academic and military training purposes, understanding the level of physical fitness is also crucial in the context of the overall health and fitness of medical students (Häkkinen et al., 2010). The results of these tests can serve as a basis for designing appropriate exercise programs and creating awareness of the importance of maintaining physical fitness among medical students. As future doctors, they are expected to be role models for adopting a healthy and active lifestyle.

Previous research indicates that physical fitness can vary based on gender and may be influenced by changes in physical activity patterns during specific situations, such as a pandemic (WHO, 2012). This research aims to provide empirical data on the physical fitness levels of Medical Undergraduate Program cadets at RIDU in Cohort 4 of the year 2023. Using The Global Physical Activity Questionnaire (GPAQ) to measure the physical activity of cadets. This information is expected to serve as a foundation for the development of more specific and effective physical exercise programs. The research results provide deeper insights into the relationship between physical fitness, academic performance, and medical skills among medical students. Through understanding and

analyzing the cadet's level of physical fitness, we can identify potential health or fitness issues that need attention and suggest the interventions to improve their overall health and physical fitness.

METHODS

This article are descriptive research using a survey method and the collection of data through the Physical Fitness Test Type "A". This method will enable the researcher to systematically gather data from a sample of cadet students at the Republic of Indonesia Defense University. Data will be collected through research instruments, such as a questionnaire or survey, designed to gather information about the physical activities performed by the subjects, their Physical Fitness Test Type "A" results, as well as other factors that may influence physical activity and Physical Fitness Test Type "A" outcomes.

RESULTS

Table 1. Distribution of Basic Characteristics of Research Subjects

Characteristics of Research Subjects	n	%
Gender		
Man	35	48,6
Woman	37	51,4
Age		
17 Years Old	16	22,2
18 Years Old	19	54,2
19 Years Old	17	23,6
Physical Activity Level		
Light	2	2,8
Moderate	7	9,7
Heavy	63	87,5
Physical Fitness Level		
Poor	6	8,3
Adequate	53	73,6
Good	13	8,3
Total	72	100

Figure 1. illustrates the distribution of characteristics among the research subjects, with 72 respondents, 35 respondents (48.6%) are male, and 37 respondents (51.4%) are female. The distribution of age were 16 respondents (22.2%) are 17 years old, 39 respondents (54.2%) are 18 years old, and 17 respondents (23.6%) are 19 years old (Figure 2). The distribution of physical activity, 2 respondents (2.8%) have a light level of physical activity, 7 respondents (9.7%) have a moderate level of physical activity, and 63 respondents (87.5%) have a heavy level of physical activity. Figure 4 illustrates the distribution of characteristics among the research subjects with 72 respondents, 6 respondents (8.3%) have a poor level of physical fitness, 53 respondents (73.6%) have an adequate level of physical fitness, and 13 respondents (18.1%) have a good level of physical fitness.

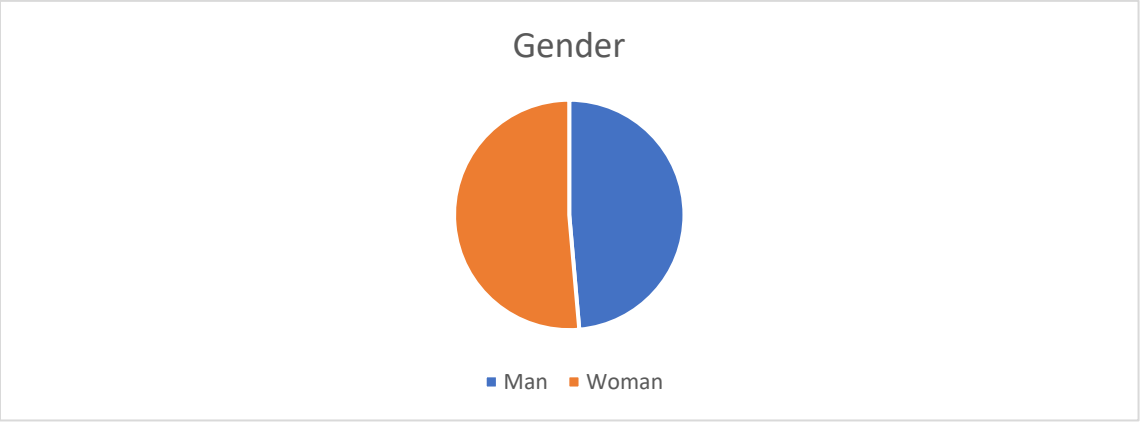
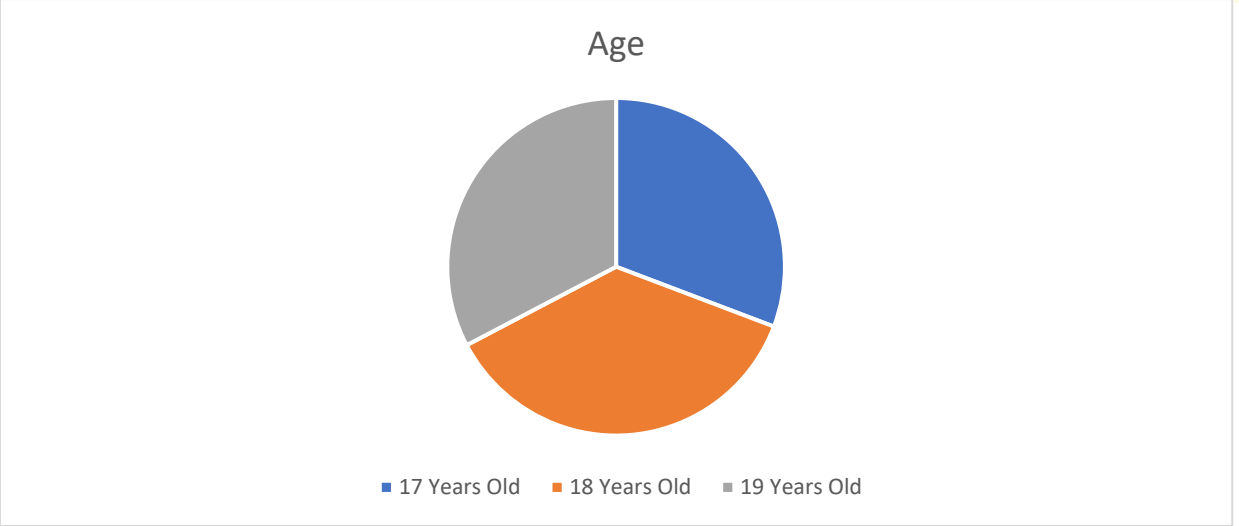
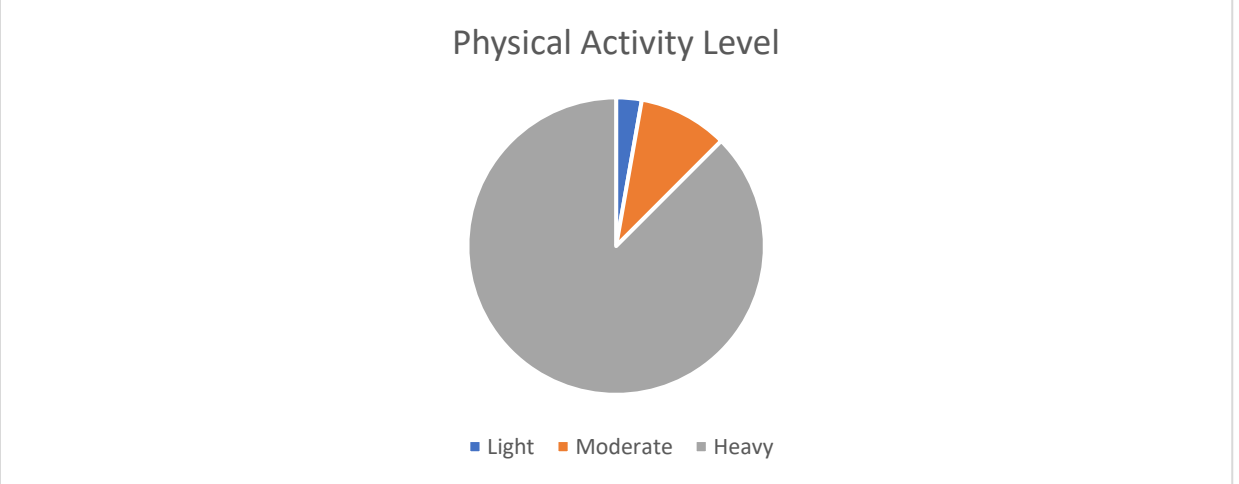


Figure 1. Gender Distribution Graph





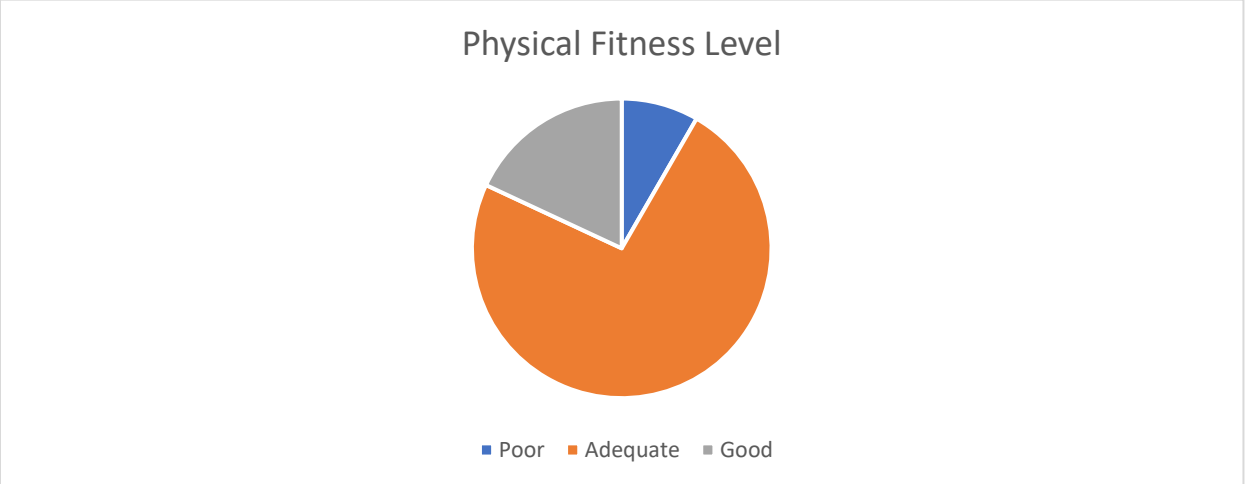


Figure 2. Age Distribution Graph; Graph of Physical Activity Level Distribution; Graph of Physical Fitness Level Distribution.

DISCUSSION

The gender distribution in the research data indicates that 48.6% of the study participants are male, while the remaining 51.4% are female. This finding aligns with the research conducted by (Muhammad, 2022), demonstrating that gender has a significant impact on the development of physical fitness in young adults. The recorded gender distribution in this study reflects participant diversity, creating a balanced representation between males and females in the subject pool.

The consistency of these findings with the research of (Muhammad, 2022) contributes to a broader understanding of the role of gender in the context of physical fitness in the young adult population. Analyzing gender is crucial in delineating specific differences or patterns that may influence the levels of physical activity and physical fitness in both groups. Therefore, the balanced distribution between males and females in this study reinforces the validity of the findings and provides a strong foundation for further understanding factors influencing physical fitness in medical students at the Republic of Indonesia Defense University.

Age Distribution

The age distribution of the research participants indicates that the majority, or 54.2%, are 18 years old, followed by 22.2% who are 17 years old, and 23.6% who are 19 years old. This finding reflects the dominance of young adults in the research subjects, aligning with previous research by (Nugroho, 2021), which also observed physical activity and fitness in urban communities.

In the context of health and fitness, the predominance of young adults in the research subjects has significant implications. The research by (Nugroho, 2021) can provide additional context to these findings by exploring aspects of physical activity and fitness in urban environments. The results of this research can serve as a basis for a deeper understanding of demographic characteristics influencing the level of physical fitness, particularly among medical undergraduate students at RIDU. The implications of these findings can support the development of more targeted interventions and exercise

programs, considering the crucial role of physical fitness in preparing aspiring doctors for academic challenges, military training, and overall health.

Distribution of Physical Activity Levels

Overall, respondents engaging in heavy physical activity amount to 87.5%. This finding is consistent with previous research conducted by (Nurmidin et al., 2020), which noted that the COVID-19 pandemic has led to a decrease in the physical activity levels of the public. This may be attributed to movement restrictions and the availability of sports facilities affecting exercise habits.

The importance of understanding and assessing the level of physical fitness among medical undergraduate cadets at RIDU becomes highly relevant, especially in the context of shaping future doctors. With a better understanding of the levels of physical activity and physical fitness among students, the development of more effective and efficient exercise programs can be implemented. This has practical implications by providing relevant information for the leadership and policymakers at the Republic of Indonesia Defense University for decision-making regarding the readiness and effectiveness of the teaching and learning process.

Distribution of Physical Fitness Levels

Using the Physical Fitness Test Type "A" or the 12-minute run test, the research results indicate that the majority of respondents, both male and female, have an adequate level of physical fitness. The percentage of those with adequate physical fitness is 73.6%, aligning with the findings of a previous study by (Nugroho, 2021), which observed the level of physical fitness in urban communities during the pandemic.

The importance of evaluating physical fitness becomes crucial, especially as these cadets will face academic challenges and military training during their education. The results of the physical fitness test not only provide insights into the students' physical readiness but can also serve as a foundation for designing appropriate physical exercise programs. Additionally, awareness of the importance of maintaining physical fitness among medical students is something that needs to be instilled, considering that healthy and fit doctors can serve as inspiration for patients to adopt a healthy lifestyle.

CONCLUSION

The study had strict inclusion and exclusion criteria to ensure relevance and quality of data. Inclusion criteria included advanced breast cancer patient populations who were menopausal, with positive hormone receptor (HR) status, using randomized controlled trial (RCT) methods, known population size, publication language in English, and publication year after 2013. Meanwhile, the exclusion criteria included patient populations who were not at an advanced stage of breast cancer, who were pre-menopausal, with negative HR status, using journal review methods, and unclear study results. Aromatase inhibitors are beneficial in treating breast cancer in patients with hormone receptor positive (HR+) status. Functioning by explicitly blocking the enzyme aromatase, which is critical in converting androgens into estrogens, Aromatase Inhibitors reduce the availability of estrogens that fuel cancer growth. Although adjunctive therapies such as metformin or saracatinib may complement the administration of Aromatase Inhibitors, their impact is not significant. However, keep in mind, the use of Aromatase Inhibitors also has side effects, including the risk of increased depression and anxiety in patients, which need to be carefully managed during treatment. As such, appropriate psychosocial interventions and mental health monitoring are essential to support overall therapeutic success.

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