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ORIGINAL ARTICLE

Evaluation of physical activity levels among medical students at unjani medical school

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ABSTRACT

Physical activity is essential for the health and professional development of medical students. Previous studies have indicated that the level of physical activity among medical students is generally low, with up to 60% being inactive. Technological advancements and the predominantly sedentary nature of medical education contribute to these low daily activity levels, leading to a tendency toward an inactive lifestyle. On the other hand, medical students, as future healthcare providers, play a crucial role in encouraging their patients to adopt healthy physical activity habits. This study aims to evaluate the physical activity levels of students at the Faculty of Medicine at Universitas Jenderal Achmad Yani (UNJANI). Using observational design, this cross-sectional study involved a total of 60 respondents from the Medical Education Program who met the research criteria and were selected through consecutive sampling. Data regarding age, gender, and physical activity were collected using a questionnaire. Physical activity was measured using the standardized long-form International Physical Activity Questionnaire (IPAQ). The results show that the majority of students had a moderate level of physical activity (45%), followed by low (28.3%) and high levels (26.7%). The proportion of female respondents with low physical activity levels was significantly higher (36.8%) compared to males (13.6%). Among female participants, physical activity levels were predominantly categorized as low and moderate, whereas male participants displayed a higher distribution of moderate and high activity levels. These results highlight the necessity for targeted interventions to promote physical activity, particularly in encouraging a healthier lifestyle among medical students at UNJANI.

Keyword: Medical students, physical activity, sedentary lifestyle, gender differences, health promotion

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INTRODUCTION

Due to their demanding schedules and high levels of stress, medical students frequently spend a lot of time sitting and studying. This lifestyle raises the risk of establishing sedentary habits, which eventually may have adverse impacts on their health. Insufficient amounts of daily physical activity are getting worse with technological advancement and the predominantly sedentary nature of medical education, fostering an inactive trend. Adolescent non-communicable diseases (NCDs) are mainly caused by inadequate physical activity, and their prevalence is increasing, which complicates public health issues. Preventive action is essential as young individuals with NCDs face long-term issues controlling their health. Furthermore, lack of physical activity may have a detrimental effect on an individual's general personal growth, academic performance, and mental health. Regular exercise is vital for sustaining both mental and physical health across all age groups. However, concerning statistics indicate that 81% of teenagers and 27.5% of adults fail to meet the World Health Organization's (WHO) minimum physical activity guidelines. This lack of exercise not only affects individuals and their families, but also puts a pressure on healthcare institution systems and the broader community.[1] According to the 2018 Basic Health Research (Riskesdas), 33.5% of Indonesia's population is physically inactive, rising from 26% in 2013.[2]

Furthermore, Yhusi Karina R from Universitas Brawijaya revealed that 60% of medical students reported poor levels of physical activity.[3] In contrast, a survey conducted by Utomo at Universitas Sebelas Maret discovered that just 15.24% of medical students were physically inactive, while 50.47% were moderately active.[4] Regular physical activity is essential for preserving good health in modern society. Unfortunately, modern workplaces and living settings have significantly decreased the demand for physical activity. I order to allow for sufficient activities, many adults discontinued their regular routines, which leads to a more sedentary lifestyle and a concerning increase in obesity rates, both of which represent serious health risks. Based on intensity and energy expenditure, physical activity can be classified into three categories: low, moderate, and high. The International Physical Activity Questionnaire (IPAQ) enables subjective measurement of these activities, offering data on their frequency, intensity, and context.[5] As a result, public health professionals have made significant efforts to promote physical activity in the general population to combat diseases related to physical inactivity. Furthermore, based on intensity and calorie expenditure physical activity levels are divided into low, moderate, and high. These can be measured subjectively using the International Physical Activity Questionnaire (IPAQ) to obtain detailed information about the frequency, intensity, and location of activities.[6]

As prospective healthcare providers, medical students play an important role in encouraging individuals to adopt healthy physical exercise habits. This study aims to analyse the physical activity levels of FK Unjani medical students in order to inform disease prevention plans, design adequate interventions, and improve the students' general wellness.

METHODS AND SUBJECT

This research is a descriptive quantitative study with a cross-sectional design. The accessible population consisted of active undergraduate medical students from the 2021 class at the Faculty of Medicine, Universitas Jenderal Achmad Yani Universitas who were in good health during the period of November-December 2023. The students provided consent to participate by signing a consent form after receiving an explanation and having all their questions about the questionnaire answered. A total of 60 students was selected as the sample using the consecutive sampling technique.

This study was conducted after obtaining ethical approval from the Research Ethics Committee of the Faculty of Medicine, Universitas Jenderal Achmad Yani, with approval number 054/UM1.10/2023.

The instrument used in this study was the IPAQ-long form (IPAQ-lf) questionnaire. The IPAQ-lf contains questions about physical activities performed over the past 7 days across 5 different contexts: work-related physical activity, transportation, physical activity at home, physical activity during recreational time, sports, and leisure activities, with a total of 27 questions. Primary data collection was conducted by having respondents fill out a digital form independently. Data obtained from the IPAQ-lf questionnaire are presented as continuous data using MET-minutes, which is the product of the Metabolic Equivalent of Task (MET) and the duration of the physical activity performed. The physical activity levels are then categorized based on intensity and the amount of calories burned, classified into low, moderate, and high physical activity levels.[5] Univariate analysis was used to describe the characteristics of the study subjects and the physical activity levels of the students.

RESULTS AND DISCUSSION

Description of Respondent Characteristics

The distribution by age, gender, and nutritional condition correspond to the study's subject features. Table 1 displays the distribution of both gender and nutritional status. Women represented the largest percentage of the study's responses (63.3%). Normal nutritional status respondents accounted for 41% of the sample, whereas excess nutritional status respondents (overweight, obesity class 1, and obesity class 2) made up 40%.

Table 1. Respondent Characteristic

Characteristic	N	%
Sex		
male	22	36,7%
female	38	63,3%
Total	60	100%
Nutritional Status		
Underweight	1	1,7%
Normal	25	41,7%
Overweight	6	10%
Obesity 1	17	28,3%
Obesity 2	11	18,3%
Total	60	100%

Physical Activity Levels among FK Unjani Students

Any skeletal muscle-driven movement of the body requiring the use of energy is classified as physical activity. Different actions and intensities could be involved in this activity.[1,7] Physical activity can be undertaken in a variety of contexts and circumstances, such as while travelling from one location to another, while working, or during leisure time (e.g., walking, cycling, active recreation, and active games).[8] In physical activity, the three main elements are frequency, duration, and intensity.[9]

Figure 1 shows the overall levels of physical activity among FK Unjani students by gender. According to Figure 1, the majority of medical students were moderately active (45%), followed by those who were slightly active (28.3%) and those who were highly active (26.7%). The majority of respondents, both male and female, are somewhat active, with low activity levels coming in second. Women make up a larger percentage of respondents with lower levels of physical activity (36.8%) than men (13.6%).

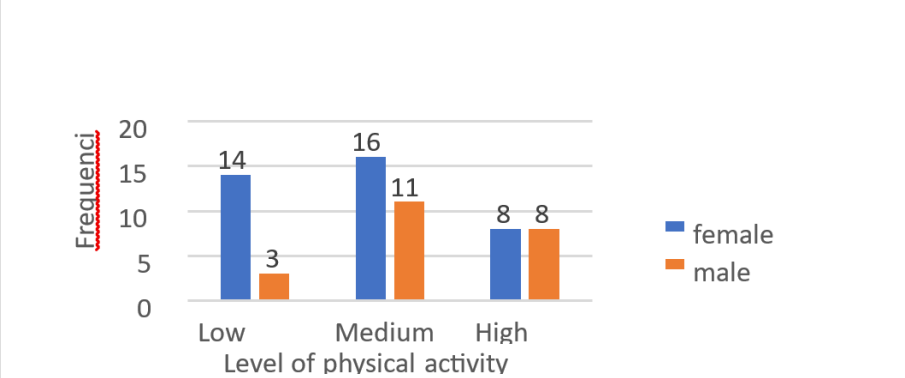

Figure 1. Graph showing the level of physical activity of respondents by gender

The results of this study are consistent with those obtained by Adinda Lorenza and Yetty Machrina at the Universitas of Muhammadiyah Sumatera Utara, who found the majority of female students engage in relatively little physical activity (25.4%).[10] Research conducted by Yoli Farradika at Universitas Atmajaya revealed that students' motivation to be physically active is influenced by their gender. Competitive sports participation is more common among men, which is an inherent aspect affecting their motivation.[11]

Table 2. Characteristics of physical activity levels by nutritional status category.

Level of Physical activity	Nutrituonal status					Total
	Under weight	*Normal*	*Over weight*	*Obesitas 1*	*Obesitas 2*	
Low	0 (0%)	9 (52,9%)	1 (5,9%)	1 (5,9%)	6 (35,3%)	17 (100%)
Medium	1 (3,7%)	10 (37%)	3 (11,1%)	12 (44,4%)	1 (3,7%)	27 (100%)
High	0 (0%)	6 (37,5%)	2 (12,5%)	4 (25%)	4 (25%)	16 (100%)
Total	1 (1,7%)	25 (41,7%)	6 (10%)	17 (28,3%)	11 (18,3)	60 (100%)

Table 2 indicates that the categories of moderate and high physical activity represent the majority of respondents with excessive nutritional status, including overweight, obesity grade 1, and obesity grade 2. These findings suggest that a high body mass index (BMI) does not necessarily correlate with low levels of physical activity. This is consistent with research conducted by Armanto among medical students at Universitas Muslim Indonesia, which discovered that a significant proportion of students (65.5%) who engage in minimal physical exercise have excellent nutritional conditions.[12] Less physical activity can lead to insufficient utilization of the body's stored energy insufficiently, resulting in fat accumulation. In addition to physical activity, other variables that may influence nutritional status include dietary patterns, sleep patterns, stress levels and others.[13-16]

Excessive nutritional status can result from consuming an excessive numbers of calories without engaging in regular, sufficient physical exercise. Physical activity and nutritional status have been proven to be significantly correlated in several prior research. Additionally, one of the variables causing a rise in BMI is physical exercise. Maintaining a balanced dietary status and physical health involves regular physical activity.[15-17]

The definition of physical inactivity refer to failing to engage in sufficient exercise to meet the current guidelines for physical activity. Any activity that involves energy expenditure while sitting, lying down, or reclining is classified as sedentary behaviour.[7] A lack of free time, a high workload, and restricted access to sports facilities are some of the factors behind medical students' high levels of physical inactivity. Since the fact that most of the activities that medical students at Unjani Universitas must participate in, including group discussions, tutorials, medical skills, laboratory work, lectures, and others, require extended periods of sitting, they are extremely busy and stressed. These academic activities proceed from the morning until late afternoon or night-time. Long lecture hours, sleep deprivation, an overwhelming amount of homework, and mental stress can all contribute to medical students' low levels of physical activity, leading them to neglect exercise.[18] Sitting time is also associated with factors that lead to low levels of physical exercise. A medical student spends 8.72 hours sitting during the day and on weekends, which explains the high study load required by medical school during the week, making individuals inactive.[19]

Physical activity can significantly increase physical fitness, which is crucial as physically fit individuals can perform tasks more effectively. Additionally, it can assist in managing a demanding academic schedule. Moreover, exercise helps prevent and control stress and anxiety, both of which are linked to better academic achievement.[14] Conversely, studies indicate that students who avoid engaging in physical activity may adopt sedentary behaviour like adults, potentially affecting their long-term health. Students' increasing physical exercise can contribute to better general health and reduce health risks. In order to encourage medical students to lead more active lifestyles, these arguments highlight the necessity of health promotion activities and programmes.

In the context of physical activity, three factors need to be taken into account: frequency, duration, and intensity. Physical activity can be categorized into three levels: low, moderate, and high, depending on the intensity and caloric expenditure. The International Physical Activity Questionnaire (IPAQ) is a valuable tool to measure these aspects subjectively as it gathers more specific data on the frequency, intensity, and location of the activities.[5]

According to the World Health Organization's (WHO) global recommendations, individuals aged 18 to 64 should engage in physical activity during their leisure time, when travelling (e.g., walking or cycling), working, doing everyday home tasks, playing sports, or participating in specialised training.

This ought to be carried out within the framework of everyday, familial, and communal activities. It is advised to engage in 150 minutes of aerobic exercise of moderate intensity per week, 75 minutes of vigorous-intensity aerobic activity per week, or an equivalent combination of moderate- and vigorous-intensity activity. Such engagement is essential for enhancing bone strength, cardiorespiratory and muscular fitness, and for lowering the risk of depression and non-communicable diseases. Major muscle tissues should be involved in muscle-strengthening exercises at least twice a week. Physical activities that range from 3 to 5.9 METs are classified into moderately intense. Example of moderate activities include briskly walking, cleaning automobiles, sweeping and mopping floors, construction work, and certain sports like table tennis, basketball, or badminton are examples of moderate activities.[20] Physical activities above 6 METs are referred to as vigorous-intensity activities. Examples of vigorous activities include brisk walking uphill, jogging, digging, lifting heavy weights, cycling, playing football, swimming, tennis, and volleyball.[9]

A major protective factor for the management and prevention of non-communicable diseases is regular physical activity. The mortality risk for young individuals is reduced by 20–30% when they reach the recommended levels of physical activity. Active people can avoid roughly 5% of type-2 diabetes diagnoses and 7-8% of all cases of dementia, depression, and cardiovascular disease.[1]

Despite the possible advantages of physical activity, students frequently encounter obstacles in maintaining a consistent exercise. Numerous factors, such as gender, academic load, socioeconomic issue, usage of health technologies, mental health, and availability of sports facilities, significantly influence the medical students' physical inactivity. Research indicates that women are more likely to be physically inactive compared to males, according to research. Compared to students in their latter years, those in their early years of study are typically more active. Students who have a lower body mass index and are more physically active tend to utilise health apps on their smartphones.[21] Family characteristics also play a significant role, particularly the physical activity levels of the parents. Less active students typically have parents who are inactive.[22] Physical inactivity is more common among students who have low self-efficacy as well as potential mental health problems. Due to financial constraints that limit their access to sports facilities and physical activities, students from low-income families are more likely to be physically inactive.[23] Tight schedules and academic demands are frequently the biggest obstacles to students' ability to exerce. Research indicates that one of the biggest obstacles to physical activity is time limits brought on by hectic study schedules. Furthermore, limited access to sports facilities and the usage of private transportation, like vehicles, adversely affect students' levels of physical exercise. These factors must be taken into account for treatments to be effective.

A multifaceted strategy including social media, team-based fitness programs, health education, and physical activity counselling is important for improving physical activity among medical students. Chronic health problems can be addressed and students could be more qualified to become healthcare providers through incorporating these programmes into the medical curriculum. Results are better when web-based therapies and motivational interviews are combined than when either method is used alone. Research shows that this combination has successfully raised medical students' levels of physical exercise.[24] The well-being of students and physical activity can be improved by team-based fitness programmes that offer incentives and competition to meet weekly exercise goals.

Medical students serve as vital role models for patients and the public by modelling healthy lifestyles, such as engaging in a balanced regimen of physical activity. Additionally, as prospective medical professionals, students are essential in helping patients develop appropriate physical activity habits by counselling and referring them.[18]

CONCLUSION

The findings indicate that a significant portion of students at UNJANI engages in moderate physical activity, with 45% falling into this category. However, there is a notable concern regarding the levels of physical activity among female respondents, with 36.8% exhibiting low activity levels compared to only 13.6% of males. Given these results, it is imperative to implement targeted interventions aimed at promoting physical activity, especially among female medical students. Encouraging a healthier lifestyle through structured programs and awareness campaigns could significantly enhance overall physical well-being within this demographic.

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DECLARATION OF INTERESTS

We have no conflict of interest

REFERENCES

1. Organización Mundial de la Salud. Global status report on physical activity 2022 [Internet]. WHO Press, World Health Organization. 2022. 1–112 p. Available from: https://www.who.int/teams/health-promotion/physical-activity/global-status-report-on-physical-activity-2022
2. Riset Dinas Kesehatan. Laporan Riskesdas 2018 Nasional.pdf. Lembaga Penerbit Balitbangkes. 2018.
3. Riskawati YK, Prabowo ED, Al-Rasyid H. Physical Activity Level of the Second , Third, and Fourth Years Students At Study Program of Medicine. Maj Kesehat Fak Kedokt Univ Brawijaya. 2018;5(1):26–32.
4. Utomo HS, Handayani S, Wiyono N. Hubungan Aktivitas Fisik dengan Kapasitas Memori Kerja pada Mahasiswa Program Studi Kedokteran Universitas Sebelas Maret. Nexus Kedokt Komunitas. 2016;5(2):1–11.
5. Analysis of the International Physical Guidelines for Data Processing and Activity Questionnaire (IPAQ). Acta Crystallogr Sect E Struct Reports Online. 2005;68(9):1–15.
6. Seeveldt V, Malina RM, Clark MA. Factors influencing levels of physical activity in adults. Sport Med. 2002;32(3):143–68.
7. OMS. WHO Guidelines on physical activity and sedentary behaviour. Routledge Handbook of Youth Sport. 2016. 1–582 p.
8. RI DPKK. Ayo Bergerak, Lawan Obesitas. 1st ed. dr. Lili S Sulistyowati. M, editor. Jakarta: Kementrian Kesehatan RI; 2017. 2–6 p.
9. Wicaksono, Arif; Handoko W. Aktivitas Fisik dan Kesehatan [Internet]. cetakan pe. Pontianak Indonesia: IAIN Pontianak Press; 2021. 32–36 p. Available from: https://www.researchgate.net/publication/353605384
10. Lorenza A, Machrina Y. Dengan Derajat Dismenore Primer Pada Muhammadiyah Sumatera Utara.

11. Farradika Y, Umniyatun Y, Nurmansyah MI, Jannah M. Perilaku Aktivitas Fisik dan Determinannya pada Mahasiswa Fakultas Ilmu - Ilmu Kesehatan Universitas Muhammadiyah Prof. Dr. Hamka. ARKESMAS (Arsip Kesehat Masyarakat). 2019;4(1):134–42.
12. Pratama A, Zulfahmidah Z. Gambaran Indeks Massa Tubuh (IMT) pada Mahasiswa. Indones J Heal. 2021;2(01):1–7.
13. Angesti AN, Manikam RM. Faktor Yang Berhubungan Dengan Status Gizi Mahasiswa Tingkat Akhir S1 Fakultas Kesehatan Universitas MH. Thamrin. J Ilm Kesehat. 2020;12(1):1–14.
14. Annamayra A, Ramli RS, Nur L. Gambaran Tingkat Aktivitas Fisik Mahasiswa Fakultas Kedokteran Universitas Pasundan di Era New Normal. J Maenpo J Pendidik Jasm Kesehat dan Rekreasi [Internet]. 2022;12(2):206–18. Available from: https://jurnal.unsur.ac.id/maenpo
15. Hidayat A, Suroto. Hubungan antara Status Gizi dan Aktivitas Fisik dengan Tingkat Kebugaran Jasmani Siswa. J Pendidik Olahraga dan Kesehat. 2016;04(02):516–21.
16. Alkaririn MR, Aji AS, Afifah E. Hubungan Aktifitas Fisik Dengan Status Gizi Mahasiswa Keperawatan Universitas Alma Ata Yogyakarta. 2022;5:146–51.
17. Habut MY, Nurmawan IPS, Wiryanthini IAD. Hubungan Indeks Massa Tubuh dan Aktivitas Fisik terhadap Daya Tahan Kardiovaskular pada Mahasiswa Fakultas Kedokteran Universitas Udayana. Erepo Unud. 2015;831:1–14.
18. Herazo-Beltrán Y, Pinillos Y, Vidarte J, Crissien E, Suarez D, García R. Predictors of perceived barriers to physical activity in the general adult population: a cross-sectional study. Brazilian J Phys Ther [Internet]. 2017;21(1):44–50. Available from: http://dx.doi.org/10.1016/j.bjpt.2016.04.003
19. Schlickmann DW, Kock K de S. Level of Physical Activity Knowledge of Medical Students in a Brazilian Universitas. J Lifestyle Med. 2022;12(1):47–55.
20. Global WLC-PD. Global Recommendations on Physical Activity for Health WHO [Internet]. Vol. 11, WHO Library Cataloguing-in-Publication Data Global. 2018. Available from: http://link.springer.com/10.1007/978-3-319-59379-1%0Ahttp://dx.doi.org/10.1016/B978-0-12-420070-8.00002-7%0Ahttp://dx.doi.org/10.1016/j.ab.2015.03.024%0Ahttps://doi.org/10.1080/07352689.2018.1441103%0Ahttp://www.chile.bmw-motorrad.cl/sync/showroom/lam/es/
21. Medagama A, Galgomuwa M, De Silva C. Physical activity patterns and socio-demographic correlates of physical activity among medical undergraduates in Sri Lanka: An observational study. Postgrad Med J. 2018;94(1107):32–6.
22. Uğraş Dikmen A, Altunsoy M, Koç AK, Koç E, Özkan S. Physical activity level of medical students: Is there a family effect. Curr Med Res. 2022;3(November 2021):68–73.
23. Mohammed G, Md Said S, Azuhairi, Ariffin A, Kamaruzaman J. Physical Inactivity and Its Associated Factors among Universitas Students. IOSR J Dent Med Sci. 2014;13(10):119–30.
24. Worobetz A, Retief PJ, Loughran S, Walsh J, Casey M, Hayes P, et al. A feasibility study of an exercise intervention to educate and promote health and well-being among medical students: The "MED-WELL" programme. BMC Med Educ. 2020;20(1):1–12.