DOI: 10.55735/hjprs.v2i3.64

THE HEALER
Journal of Physiotherapy & Rehabilitation Sciences

Original Article

Role of Physical Activity Among Medical Students; An Observational Study

Dania Khan[1], Kanwal Rizwan[1*], Usman Riaz[1], Muheet shahid[1], Noor ul Ain[2], Muhammad Ajmal[3]

[1]Physical Therapy Department, Fatima Memorial Hospital, Lahore, Pakistan*
[2]Riphah International University, Lahore, Pakistan
[3]Mohi-ud-din Institute of Rehabilitation Sciences, Mirpur Azad Jammu Kashmir

ABSTRACT

Background: A sedentary lifestyle and low physical activity have become major health problems among the young generation nowadays. Musculoskeletal problems are common in students and working adults related to ergonomic problems**. Objective:** To determine the role of physical activity among medical students. **Methods:** This observational study was performed from August 2021 to January 2022 on medical students of Fatima Memorial Medical College, Lahore, Pakistan after approval of synopsis from the Advanced Studies and Research Board using a non-probability convenient sampling technique to collect data from 362 participants after obtaining written informed consent. This survey was conducted by using the International Physical Activity questionnaire to determine physical activity at mild, moderate and vigorous levels. Data were analyzed for descriptive and inferential statistics by calculating continuous variables using mean and standard deviation while categorical variables using frequency and percentages. **Results:** According to the findings of the study out of a total of 362 students only 21 % of students do vigorous activity, 45 % of students do moderate and 33.9 % of students do a mild activity. **Conclusion:** Sedentary lifestyle and consistent sitting affect the lives of students. The results of this study showed that most medical students are physically active and this lifestyle has a positive impact on their health. They are involved in walking for more than 30 minutes to 1 hour. Most of the students have a moderate level of physical activity.

DOI: 10.55735/hjprs.v2i3.64

Access the article online

SCAN ME

***Corresponding Author:** Kanwal Rizwan, Physical Therapy Department, Fatima Memorial Hospital, Lahore, Pakistan
Email: kanwal.rizwan57@yahoo.com
Keywords: international physical activity questionnaire; physical activity; medical students; sedentary lifestyle

Citation: Khan D, Rizwan K, Riaz U, Shahid M, Ain N, Ajmal M. Role of physical activity among medical students; An observational study. The healer journal of physiotherapy and rehabilitation sciences, 2022; 2(3):245-251.

INTRODUCTION

Activities of the daily life of students mostly involve prolong sitting posture and a sedentary lifestyle thus they do not have sufficient physical activity (PA) in their daily lifestyle and this becomes a major public health issue that results in poor fitness and major health problems or diseases.[1] WHO states that physical activity is any movement of the body caused by skeletal muscle contraction and requires energy consumption. All movements performed by a person during leisure time or work refers to as physical activity.

Any type of physical activity improves health and helps in decreasing the risk of heart disease, hypertension, stroke, dementia, postpartum depression, type II diabetes, excessive weight gain, falls with injuries among the elderly, and colon and breast cancer.[2] It improves bone strength and also increases the flexibility of the body. Moreover, a sedentary lifestyle indirectly results in poor health. Sedentary means any waking behavior characterized by an energy consumption of 1.5 or less metabolic equivalents of task (MET) during, reclining, lying or sitting.[3]

Less PA results in low health-related quality of life (HRQOL). Being inactive most of the time has negative impacts on the health system, the environment economic development, community well-being and quality of life.[4] Musculoskeletal disorder (MSD) and musculoskeletal pain symptoms (MPS) are characterized by pain or discomfort related to musculoskeletal structures.[5] The most common example of MSD is patients with chronic pain diseases who are unable to do PA. Many types of PA like swimming, walking, cycling and running have been proven to play a significant role in reducing the overall risk of musculoskeletal pain and disability.

Musculoskeletal fitness is a multidimensional construct comprising the integrated function of muscle strength, endurance and power to enable the performance of work against one's body weight or external resistance. PA has significant health benefits for the body and mind and contributes to preventing and managing non-communicable diseases such as cancer, diabetes and cardiovascular diseases.[6]

Watson A in 2017 investigated the association between classroom-based PA interventions and academic-related outcomes in primary (elementary) school-aged children. Meta-analyses were conducted in the review manager, with effect sizes calculated separately for each outcome assessed. It was found that PA has a positive impact on the achievement of children and the academic achievement rate due to the effect of a classroom-based PA (standardized mean difference = 1.03, 95% CI: 0.22,1.84). This result was obtained by using a progress monitoring tool.[7]

DOI: 10.55735/hjprs.v2i3.64

A study in 2019 on physical activity showed that psychology students like to spend their leisure time passively unlike physiotherapy students.[8] Another research showed that doing physical activity does not cause musculoskeletal problems if done at low intensity.[9]

Another study suggested that school health-promoting PA programs help students to achieve better health.[10] A study in 2018 on the faculty of dentistry at Abdul Aziz university in Saudi Arabia also showed the benefits of physical activity and musculoskeletal-related problems.[11]

The present study was conducted to find out the role of physical activity among medical students. To know their current level of physical activity and future awareness among medical students as they usually ignore physical activity in their busy schedules. There was less significant data available on medical students' healthy active lifestyles in medical colleges.

METHODS

This observational study was performed from August 2021 to January 2022 on medical students of Fatima Memorial Medical College, Lahore, Pakistan after approval of synopsis from the Advanced Studies and Research Board using a non-probability convenient sampling technique to collect data from participants after obtaining written informed consent. The calculated sample size was n=362, with a confidence interval of 95%, with anticipated population p=0.05 using the formula below: n= (1-za/2)2 (1-p)/d2.

Medical students of age group 17 to 25 years, studying 6 hours a day, walking more than 30 minutes a day for at least 3 days a week were allowed to participate in this study while subjects having any systemic diseases and arthritic patients and pregnant females were excluded from the study. Assessment of physical activity among medical students was done by using the Interaction Physical Activity questionnaire that determines PA at mild, moderate and vigorous levels.

Participants were asked about the physical activity that they had performed during the last seven days that included walking, sitting, lifting objects, etc. A consent form was given to each participant before the data collection. A self-administered standardized questionnaire was used to collect general data from medical students at Fatima Memorial Hospital. Statistical package for social sciences version (SPSS) version 23.0 was used to analyze the data for descriptive statistics by calculating continuous variables using mean and standard deviation while categorical variables using frequency and percentages. Continuous variables were presented by using histograms while categorical variables are presented by using pie charts or bar graphs.

RESULTS

All participants were of the age group 17-25 years. The mean age of the participants in this study was 20 years with a mean and standard deviation of 20.66±1.46. A total of 362 subjects participated in this study, out of which 70(19.3%) were males and 292(80.7%) were females.(Table I) While table II showed the frequency of subjects who performed vigorous activity during the last seven days of the week. According to the results, 66 subjects performed vigorous physical activity on day one of the week and 66 subjects did not perform any activity.

The maximum time in which moderate activity was performed by subjects involved in the study was 480 minutes. The maximum number of people performed moderate activity for 10 minutes in a day. It was observed that out of 362 participants, 1.1% did not walk

DOI: 10.55735/hjprs.v2i3.64

during the last seven days, 4.4% on one day, 4.1% on 2 days, 10.8% on 3 days, 5.0 % on 4 days,18.2% on 5 days, 14.1% on 6 days and 42.3 % participants walk on all seven days of the week for at least 10 minutes, as shown in Table III. The minimum time spent sitting was one hour per day and the maximum time spent was 22 hours, while the mean and the standard deviation were 10.21±4.44.

DISCUSSION

This study was designed to evaluate the role of PA levels among medical students as physical activity plays a vital role in a healthy lifestyle. The findings of this study showed that 21% of participants performed vigorous activity during the last 7 days, 45% of participants did moderate activity during the last 7 days, and 33% of participants have done mild physical activity during the last 7 days. These findings showed

Table I: Descriptive Statistics of Age of Subjects

	n	Minimum	Maximum	Mean	Std. Deviation
Age	362	17	25	20.66	1.46

Table II: Statistics of Vigorous Activity Per Week

Days	Frequency	Percent
.00	66	18.2
1.00	66	18.2
2.00	85	23.5
3.00	44	12.2
4.00	27	7.5
5.00	42	11.6
6.00	27	7.5
7.00	5	1.4
Total	362	100.0

Table III: Walk for At least 10 Min in Last Week

No of days	Frequency	Percent
.00	4	1.1
1.00	16	4.4
2.00	15	4.1
3.00	39	10.8
4.00	18	5.0
5.00	66	18.2
6.00	51	14.1
7.00	153	42.3
Total	362	100.0

DOI: 10.55735/hjprs.v2i3.64

that most students were involved in physical activities.

A study at Poland university on female students was performed on determining the association between a physically active lifestyle and quality of life.
The research was performed on a group of 285 female students of Poznań and Szczecin (Poland). The standardized World Health Organization Quality of Life-BREF (WHOQOL-BREF) questionnaire was used in this study. It was found that there are higher levels of physical activity among female students of the age group 23-25 years. This study also emphasizes the fact that

Table IV: Number of Hours Spent in Sitting Per Day

	n	Minimum	Maximum	Mean	Std. Deviation
Time spent in sitting (hours per day)	362	1.00	22.00	10.21	4.44

psychological, socioeconomic and environmental factors also affect PA and the health of an individual. It was also concluded from this study that the lifestyle of female participants and their marital status also have an impact on their quality of life and PA level.[12] The current study was conducted on medical students.

A systemic review on the importance of exercise and physical activity was done and its findings concluded that being more physically active results in a healthy lifestyle. It stated that one should set a goal of 150min/per week of PA of moderate to vigorous levels. PA and health outcomes are generally related to each other in such a manner that even small levels of PA can improve health.[13]

Another observational study in 2019 has been done on PA which was intensity specific to see behavior change in them. Adult subjects were taken from 32 different regions of Norway that gave valid data on health-related quality of life (HRQOL SF-36) and PA (N=835). HRQOL scores were compared to normal values of data by using t-tests. The results of this study showed a positive association between PA and HRQOL. The general population has high PA and Norwegian behavior change service participants within primary care had low levels of PA. In 2019, adult subjects were included in this study and students of 17 years were also included.[14] A systemic review of the PA and cognitive behavior of children was done in 2018.

This review focuses on the fact that how much physical activity is important and helps in the cognitive development of children. This review involved 58 articles of 617 results showed a correlation between PA and cognitive functioning in children. The review showed that PA is important and plays important role in the development of better learning in children. The results of this study showed that participating in sports activities improves learning, thinking and memory and also positively impacts cognition and emotional status. The results of this review correlated PA with cognitive behavior while this study was focused on the importance of

PA and its effect on the overall health of subjects.

Dimitri P in 2020 was done on the importance of PA and its benefits on long-term conditions in children and young adults. The findings of this study showed that PA imposed a positive impact on diseases like diabetes epilepsy and asthma. Physical activity interventions proved to be beneficial in cardiovascular diseases and lung diseases.[15] Another study in 2020 focused on the fact PA promotes healthy aging and helps keep bones strong and helps individuals in being healthy and independent even in older age and also helps in the prevention of several diseases.[16]

Future studies should consider taking larger group sizes and population characteristics than this study to achieve better results and collect data from different medical colleges.

CONCLUSION

This study concluded that most medical students are physically active and this lifestyle has a positive impact on their health. They are involved in walking for more than 30 minutes to one hour. Most of the students have a moderate level of physical activity.

DECLARATIONS

Consent to participate: Written consent had been taken from patients. All methods were performed following the relevant guidelines and regulations. **Availability of data and materials:** Data will be available on request. The corresponding author will submit all dataset files. **Competing interests:** None
Funding: No funding source is involved.
Authors' contributions: All authors read and approved the final manuscript.

REFERENCES

1. Sklempe Kokic I, Znika M, Brumnic V. Physical activity, health-related quality of life and musculoskeletal pain among students of physiotherapy and social sciences in Eastern Croatia - Cross-sectional survey. Annals of agricultural and environmental medicine : AAEM 2019; 26(1): 182-90.
2. Piercy KL, Troiano RP, Ballard RM, et al. The Physical Activity Guidelines for Americans. Jama 2018; 320(19): 2020-8.
3. Caspersen CJ, Powell KE, Christenson GM. Physical activity, exercise, and physical fitness: definitions and distinctions for health-related research. Public health reports (Washington, DC : 1974) 1985; 100(2): 126-31.
4. Tremblay MS, Aubert S, Barnes JD, et al. Sedentary Behavior Research Network (SBRN) - Terminology Consensus Project process and outcome. The international journal of behavioral nutrition and physical activity 2017; 14(1): 75.
5. Barbosa RE, Assunção A, de Araújo TM. Musculoskeletal pain among healthcare workers: an exploratory study on gender differences. American journal of industrial medicine 2013; 56(10): 1201-12.
6. da Costa BR, Vieira ER. Risk factors for work-related musculoskeletal disorders: A systematic review of recent longitudinal studies. American journal of industrial medicine 2010; 53(3): 285-323.
7. Watson A, Timperio A, Brown H, Best K, Hesketh KD. Effect of classroom-based physical activity interventions on academic and physical activity outcomes: a systematic review and meta-analysis. The international journal of behavioral nutrition and physical activity 2017; 14(1): 114.
8. Nowak PF, Bożek A, Blukacz M. Physical Activity, Sedentary Behavior, and Quality of Life among University Students. BioMed Research International 2019; 2019: 9791281.
9. Guddal MH, Stensland S, Småstuen MC, Johnsen MB, Zwart JA, Storheim K.

DOI: 10.55735/hjprs.v2i3.64

Physical Activity Level and Sport Participation in Relation to Musculoskeletal Pain in a Population-Based Study of Adolescents: The Young-HUNT Study. Orthopaedic journal of sports medicine 2017; 5(1): 2325967116685543.
10. Bermejo-Cantarero A, Álvarez-Bueno C, Martinez-Vizcaino V, García-Hermoso A, Torres-Costoso AI, Sánchez-López M. Association between physical activity, sedentary behavior, and fitness with health related quality of life in healthy children and adolescents: A protocol for a systematic review and meta-analysis. Medicine 2017; 96(12): e6407.
11. Felemban RA, Sofi RA, Alhebshi SA, et al. Prevalence and Predictors of Musculoskeletal Pain Among Undergraduate Students at a Dental School in Saudi Arabia. Clinical, cosmetic and investigational dentistry 2021; 13: 39-46.
12. Kotarska K, Paczyńska-Jędrycka M, Sygit K, Kmieć K, Czerw A, Nowak MA. Physical Activity and the Quality of Life of Female Students of Universities in Poland. International journal of environmental research and public health 2021; 18(10).
13. Warburton DER, Bredin SSD. Health benefits of physical activity: a systematic review of current systematic reviews. Current opinion in cardiology 2017; 32(5): 541-56.
14. Blom EE, Aadland E, Skrove GK, Solbraa AK, Oldervoll LM. Health-related quality of life and intensity-specific physical activity in high-risk adults attending a behavior change service within primary care. PloS one 2019; 14(12): e0226613.
15. Dimitri P, Joshi K, Jones N. Moving more: physical activity and its positive effects on long term conditions in children and young people. Archives of disease in childhood 2020; 105(11): 1035-40.
16. Eckstrom E, Neukam S, Kalin L, Wright J. Physical Activity and Healthy Aging. Clinics in geriatric medicine 2020; 36(4): 671-83.