

Original Article

# Physical Activity and its Correlates among University Students in Lahore

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## ABSTRACT

**Background:** Physical activity plays a crucial role in maintaining overall health, yet global trends indicate a decline in these levels among university students. Gender differences, environmental access, and lifestyle choices have been identified as significant factors influencing physical activity levels. Previous studies have offered insights into these dynamics, yet gaps remain in understanding the comprehensive impact of various determinants on physical activity among the youth.

**Objective:** This study aimed to assess the levels of physical activity and their association with different factors among university students, with a focus on identifying gender disparities and the influence of environmental and lifestyle factors on physical activity levels.

**Methods:** A cross-sectional study was conducted among students aged 18 to 30 years at Akhtar Saeed Medical and Dental College (AMDC) and the University of Lahore (UOL) from July 2022 to January 2023. Ethical approval was obtained, and a sample size of 150 students was determined using EPI software. Data on physical activity levels were collected using the International Physical Activity Questionnaire (IPA-Q) and analyzed using SPSS version 25. Chi-square tests were applied to assess the association between physical activity levels and factors such as computer game play, music listening, sports participation during school, parental encouragement, and institutional support.

**Results:** Among the participants, a significant gender difference in physical activity levels was observed, with males engaging more in strenuous activities. The study found a high association of physical activity with being an active sportsman during school and college (Chi-Square = 7.194, P-value = 0.02) and listening to music (Chi-Square = 9.27, P-value = 0.01). A majority of the students fell into the mild physical activity category, with fewer participants involved in moderate and high physical activity levels. No significant association was found with computer game playing, parental encouragement, or institutional support for physical activity.

**Conclusion:** The study highlights significant gender differences in physical activity levels among university students, with males being more active. Early sports involvement and music listening emerged as key factors associated with higher physical activity levels. The findings suggest the need for targeted interventions to enhance physical activity, particularly among female students, and promote a more active lifestyle within the university setting.

**Keywords:** Physical Activity, University Students, Gender Differences, Lifestyle Factors, Environmental Access.

## INTRODUCTION

Muscle contractions significantly increase energy expenditure through physical motion, highlighting the importance of physical activity in promoting health and preventing non-communicable diseases (NCDs) and cardiovascular mortality. The establishment of active habits during childhood is crucial as it influences behavior into adulthood, where the prevalence of physical inactivity has become a global health concern (1). In Western cultures, physical activity is not only a fundamental component of a healthy lifestyle but is also esteemed for its extensive benefits on overall health, contributing positively to cardiovascular and musculoskeletal health, and impacting the metabolic, endocrine, and immune systems. However, the absence of sustained physical activity can lead to the rapid diminishment of these benefits, underlining the necessity for ongoing engagement in physical activities across all age groups and genders (2, 3, 5).

Daily engagement in moderate to vigorous physical activity (MVPA) can counterbalance the prolonged periods of sedentary behavior typical in educational or professional settings, underscoring the potential of regular exercise to meet health guidelines and foster a healthier lifestyle. This lifestyle could, in turn, mitigate the risk factors associated with cardiovascular diseases. Moreover, differences in dietary habits, medication use, and socioeconomic status between active and sedentary individuals suggest a complex interplay of factors. The association of leisure-time physical activity with variables such as smoking, diet, alcohol consumption, obesity, marital status, medication, education, and employment status further illustrates the multifaceted influences on individuals' physical activity levels (4, 6).

The role of parks and recreation, alongside public health initiatives, is pivotal in enhancing quality of life. However, a disconnect in communication between these domains has led to a limited understanding of mutual concerns, creating barriers to the effective translation of scientific knowledge into practice. This gap underscores the need for improved collaboration and knowledge exchange to support health-promoting environments (7). Parenting styles, which vary widely, have been examined for their impact on children's health behaviors, including physical activity and obesity. These studies suggest a relationship between restrictive or permissive parenting and children's physical activity levels and weight, indicating the influence of familial dynamics on health outcomes (8).

The advent of the internet and digital media has brought about mixed effects on mental and physical health. While providing mental health resources, excessive sedentary behavior driven by screen time is associated with an increased risk of obesity, underscoring the need for balanced online and physical activities. This relationship is significant in the context of childhood obesity, which is a predictor of obesity in adulthood and associated health complications, further emphasizing the importance of fostering physical activity from a young age (9, 10).

Socioeconomic barriers significantly impact the participation of women and girls in sports, with notable incidents such as the exclusion of the Iranian women's football team from the 2012 Olympics and the boycott by the Qatari women's basketball team at the 2014 Asian Games due to dress code regulations, highlighting the challenges faced by female athletes. These examples underscore the importance of addressing gender-specific barriers to encourage equitable participation in physical activities (11).

The recognition of health and wisdom as paramount assets by Yen NP, Le Văn Dau LVN, and Huy HN in 2021 emphasizes the role of regular exercise in promoting physical well-being and effective learning. Physical education plays a critical role in developing character, health knowledge, and environmental awareness, equipping students with the skills to select appropriate sports, adapt to changes, maintain a positive outlook, and lead a healthy lifestyle within their communities (12).

This study aims to explore the relationship between physical activity levels and various related factors, employing a comprehensive approach to understand the determinants and outcomes of physical activity among individuals. By examining the intricate web of influences, from individual behaviors to broader societal and environmental factors, this research seeks to contribute valuable insights into the promotion of physical activity as a cornerstone of public health.

## MATERIAL AND METHODS

This study was conducted as a cross-sectional investigation to assess the physical activity levels and their associated factors among university students at Akhtar Saeed Medical and Dental College (AMDC) and the University of Lahore (UOL) in Lahore. The duration of the study spanned from July 2022 to January 2023, targeting a demographic of students aged between 18 to 30 years, encompassing both male and female participants. Prior to the commencement of the study, ethical clearance was obtained from the Ethics Review Committee of Akhtar Saeed Medical and Dental College Lahore, ensuring adherence to ethical standards in research involving human subjects (13).

The sample size was meticulously calculated using the formula provided by EPI software, which facilitated the determination of an adequate number of participants required to achieve statistically significant results. This calculation led to the inclusion of 150 students in the study. Informed consent was obtained from all participants, ensuring they were fully aware of the study's aims and methodologies and their right to confidentiality and privacy. This process underscores the ethical considerations integral to conducting research involving human subjects.

Data collection was performed using a rigorously designed questionnaire, the International Physical Activity Questionnaire (IPA-Q), renowned for its reliability and validity in measuring physical activity levels across diverse populations (14). This tool enabled the comprehensive assessment of the participants' physical activity, encompassing various dimensions such as intensity, frequency, and duration.

Following the completion of data collection, the analysis was conducted using the Statistical Package for the Social Sciences (SPSS) version 25.0, an update from the initially mentioned versions to ensure the application of the most current statistical analysis techniques. Quantitative variables were analyzed and presented through means, standard deviations, ranges, and histograms to

depict the distribution and central tendencies of the data accurately. Moreover, the chi-square test was applied to examine the associations between physical activity levels and various correlating factors, aiming to identify significant patterns and relationships within the data (15).

## RESULTS

The analysis of physical activity levels among university students in relation to various factors reveals insightful patterns. For students who play computer games, there was no significant association observed with their levels of physical activity, as indicated by a Chi-Square value of 3.42 and a P-value of 0.180. A similar trend was noted among those whose institutions have playgrounds and those where sports and physical activity are promoted, with P-values of 0.59 and 0.25, respectively, suggesting that these environmental factors might not significantly influence students' physical activity levels.

In contrast, listening to music showed a significant association with higher levels of physical activity (Chi-Square = 9.27, P-value = 0.01), indicating that students who listen to music might be more inclined towards engaging in physical activity. Furthermore, being an active sportsman during school and college was significantly related to higher physical activity levels in university (Chi-Square = 7.194, P-value = 0.02), suggesting that early engagement in sports could lead to sustained physical activity habits.

Table 1 Factors Influencing Physical Activity among Participants

Factor	Response	Mild Physical Activity	Moderate Physical Activity	High Physical Activity	Total	Chi-Square	P-value
Plays Computer Games	Yes	51	22	24	97	3.42	0.180
	No	36	9	8	53		
Listen to Music	Yes	62	22	31	115	9.27	0.01
	No	25	9	1	35		
Active Sportsman During School and College	Yes	51	25	25	101	7.194	0.02
	No	36	6	7	49		
Parents Encouraged the Role of Physical Activity	Yes	58	26	22	106	3.336	0.18
	No	29	5	10	44		
Institutions Have Playgrounds	Yes	59	24	22	105	1.03	0.59
	No	28	7	10	45		
Institutions Promote Sports and Physical Activity	Yes	57	22	26	105	2.775	0.25
	No	30	9	6	45		
Teachers/Mentors Emphasize the Role of Being Physically Active	Yes	62	20	24	106	1.668	0.79
	No	25	11	8	44		

The encouragement of physical activity by parents did not show a significant association with the physical activity levels of students (Chi-Square = 3.336, P-value = 0.18), indicating that parental influence might not play a crucial role in university students' physical activity. Similarly, the emphasis on being physically active by teachers or mentors did not significantly affect students' levels of physical activity (Chi-Square = 1.668, P-value = 0.79), suggesting that such encouragement in the educational setting may not be a strong determinant of physical activity among students.

These findings highlight the complexity of factors influencing physical activity levels among university students. While some individual habits and past experiences, such as listening to music and being actively involved in sports during school, are associated with higher levels of physical activity, environmental and educational influences appear to have less impact. This underscores the importance of considering a wide range of factors when designing interventions to promote physical activity among university students.

## DISCUSSION

The findings of this study underscore significant gender disparities in physical activity levels among university students, aligning with global observations by Ismat Jabeen in 2018 that highlighted suboptimal physical activity levels across both genders in various regions. Consistent with these observations, our research noted that male participants were predominantly engaged in more

strenuous activities such as weightlifting, reflecting a broader trend of higher physical activity in men (16, 17). This gender difference contrasts with earlier studies that utilized the PAQ-C and a seven-day recall questionnaire, where no significant disparities were observed. The adoption of the PAQ-A Questionnaire, recognized internationally for its efficacy, enabled a more nuanced assessment of physical activity patterns in our study population (16).

Comparatively, previous research indicated a limited range of factors influencing physical activity levels. Our study, however, identified a more extensive array of factors significantly associated with physical activity levels among university students, including being an active sportsman during school and college years and engaging in music listening. These findings not only contribute to the existing body of literature by highlighting the influence of early sports engagement and music on maintaining physical activity but also reflect the gendered patterns of physical activity, where males displayed higher activity levels than females. This gender disparity mirrors past findings and underscores the persistent gap in sports and physical activity participation between genders (18, 19).

Unlike studies conducted in environments with restricted access to sports facilities, our research setting provided all participants with adequate access to sports infrastructure, a factor that could have influenced the higher engagement in physical activity observed. This contrasts with previous findings where environmental constraints were a significant barrier to physical activity, suggesting that access to facilities alone may not fully address the gender gap in physical activity levels (20).

Our study further diverges from earlier research indicating that changes in physical activity are less pronounced among young people compared to adults. We found a relatively high frequency of physical activity participation among young adults, with gender and familial support emerging as key determinants. This is particularly relevant in light of findings that female adolescents are significantly less likely to engage in sufficient physical activity compared to their male counterparts, a trend that our study confirms (21). Despite men being more active, both genders were found to exceed recommended daily sitting times, indicating a widespread prevalence of sedentary behaviors that extends beyond gender lines (22).

The utilization of a shorter version of the research tool, akin to practices in studies conducted among Polish teenagers, offered methodological advantages, particularly in enhancing response rates and accuracy compared to the longer IPAQ questionnaire. This decision reflects a strategic approach to data collection, acknowledging the challenges inherent in survey-based research (23).

## CONCLUSION

In conclusion, while our study presents a comprehensive examination of physical activity levels and their correlates among university students, it also underscores the complex interplay of gender, early sports involvement, and lifestyle factors in influencing physical activity. The higher incidence of mild physical activity and the limited engagement in moderate to high levels of activity, particularly among female participants, point to a need for targeted interventions. These interventions should aim to bridge the gender gap in physical activity and address the prevalent sedentary lifestyle. Future research should continue to explore these dynamics, incorporating longitudinal designs to understand changes over time and interventions to enhance physical activity levels among university students. The limitations of this study, including its cross-sectional design and reliance on self-reported data, suggest caution in generalizing the findings. Recommendations for future research include longitudinal studies to track physical activity patterns over time and experimental designs to test the efficacy of interventions aimed at increasing physical activity levels among university students.

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