



Effects of COVID-19 on the Physical Activity and Mental Health of Medical Students

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ABSTRACT

To assess the effects of COVID-19 on the physical activity and mental health of medical students in the universities of Lahore. It was a cross-sectional study that was conducted within a time period of two months among the students of public and private universities of Lahore, Pakistan (Services institute of medical sciences (SIMS) and Allama Iqbal medical college (AIMC). Data for the study was collected by administering questionnaires from medical students. Results were analyzed by using SPSS version 26. Among 170 medical students, most of them were male and 77.65% think that lockdown has affected their physical activities and 58.82% think that lockdown has affected their mental health. There is significant increase in number of people who participated in Indoor games during lockdown from 51.2 % to 81.8 % while there was reduction in no. of people who play Outdoor Games during lockdown from 33.5 % to 8.8 %. 61.76% think that lockdown has affected their sports activities, While 38.24% think that lockdown has not affected their sports activities. During lockdown 31.76% of the participants, rarely have the thought that they might have caught coronavirus. 31.76% of the participants never have the thought that they might have caught coronavirus. The health authorities and student affairs department of medical college's should take proper measures to guide the students on how to improve mental as well as physical health during COVID-19 restrictions.

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1. Introduction

The global outbreak of the SARS COVID-19 pandemic in December 2019 ushered in an unprecedented era, compelling nations to adopt preventive measures to curb its spread. As of July 16, 2021, the worldwide tally reported 189 million cases, resulting in 4.07 million deaths. The gravity of this crisis prompted the World Health Organization (2020) to formulate a Strategic Preparedness and Response Plan, emphasizing measures like social distancing and, in certain cases, complete lockdowns to mitigate the transmission of the virus (Mazza et al., 2020). Amid the multifaceted challenges posed by the pandemic, medical students found themselves uniquely affected. The demanding nature of medical education, coupled with the restrictions imposed by lockdowns, presented formidable challenges to the well-being of these students. As the WHO guidelines reshaped daily life, the focus shifted to strategies that ranged from social distancing to the enforcement of complete lockdowns, particularly in areas with high disease prevalence.

One notable consequence of these measures was a fundamental shift in lifestyle dynamics. With outdoor activities and social interactions restricted, individuals faced prolonged periods of confinement, which elevated the risk of adopting sedentary behaviors (Mazza et al.,

2020). Defined as activities performed while sitting or lying down with an energy expenditure of less than 1.5 Metabolic Equivalents, sedentary lifestyles became a concerning phenomenon (Ammar et al., 2020). Physical activity, a cornerstone of mental and physical well-being, emerged as a critical factor in navigating the challenges imposed by the pandemic. Notably, global health has long identified poor mental health and physical inactivity as significant risk factors for severe disease morbidity. The pandemic exacerbated these risk factors, compelling individuals to contend with the consequences of an inactive lifestyle (Constandt et al., 2020).

While the general population faced disruptions to their daily lives, university students, including those pursuing medical education in countries like Pakistan, encountered unique obstacles (Majeed, Schwaiger, Nazim, & Samuel, 2021). Forced to adapt to online coursework and confined to their homes due to lockdowns, the social lives of these students were severely restricted. The intricate interplay of factors such as gender, motivation to exercise, mental well-being, and eating patterns influenced the choices made by individuals regarding physical activity during these challenging times (Bore, Kelly, & Nair, 2016). This study delves into the specific challenges faced by medical students during the COVID-19 pandemic, recognizing the nuanced impact on their physical activity levels and mental health. In the face of extended lockdowns and restricted outdoor activities, understanding the consequences of a sedentary lifestyle on the neuromuscular, cardiorespiratory, and endocrine systems becomes paramount (Gallo, Gallo, Young, Moritz, & Akison, 2020). Exploring these aspects provides valuable insights into the broader implications of the pandemic on the holistic well-being of medical students, shedding light on the urgent need for targeted interventions to address these challenges (Zhou, Michaud, Owens, & Recklitis, 2020).

2. Methodology

It was a cross-sectional study that was conducted within a time period of two months among 170 medical students of public and private universities of Lahore, Pakistan (Services institute of medical sciences (SIMS) and Allama Iqbal medical college (AIMC). Data for the study was collected by administering questionnaires from medical. All students completed Corona anxiety scale, Corona obsession scale, Global physical activity scale and General physical activity scale. Ethical considerations were kept in view with the IRB approval granted. Data was collected using the questionnaire with non-probability convenient sampling technique. Data was analyzed by using SPSS version 26. Data was presented by using bar chart and pie graphs. Chi-square test was used as the test of significance. P-value < 0.05 was taken as significant.

3. Results

Students studying medicine participated in the study. Male students outnumbered female students. 24% of the population was above the age of 22 and made up the majority of the age group. This study included participants from all five years of M.B.B.S., with fourth-year medical students participating the most. 51.2% of all students lived in dorms, with the remainder attending were day scholars. Only 1.8% of people reported being married, while the rest were either single or unmarried. 81% of the pupils were from metropolitan areas, compared to 19% from rural ones. Among all the students, 78.34 % people were those who do not do exercise regularly while 21.76 % People do exercise regularly (Figure 1). There is significant increase in number of people who participated in Indoor games during lockdown from 87(51.2 %) to 139(81.8 %) while there was reduction in number of people who play Outdoor Games during lockdown from 57(33.5 %) to 26(8.8 %). Chi-square test showed that there is significant difference in values before and during lockdown. ($X^2=190$, $p<0.05$). Before lockdown, 51.76% of the participants take part in indoor games, 32.94% of the participants do outdoor games and 15.29% of the participants take part in both outdoor and indoor games.

During lockdown 81.76% of the participants take part in indoor games, 8.82% of the participants take part in outdoor games, while 9.41% of the participants take part in both outdoor and indoor games. There is 30% increase in indoor games during lockdown. During lockdown 55.89% of the participants use both Mobile and laptop while 38.24% use only Mobile, 2.94% of the participants use laptop only, 0.59% uses Tab and minor percentage of the participants use Xbox, PS Apple. 77.65% think that lockdown has affected their physical activities, while 22.35% think that lockdown has not affected their physical activities. 61.76% think that lockdown has affected their sports activities, While 38.24% think that lockdown has not affected their sports activities. During lockdown 31.76% of the participants, rarely thought

that they might have caught coronavirus. 31.76% of the participants never have the thought that they might have caught coronavirus. 27.06% of the participants sometimes thought that they might have caught coronavirus.

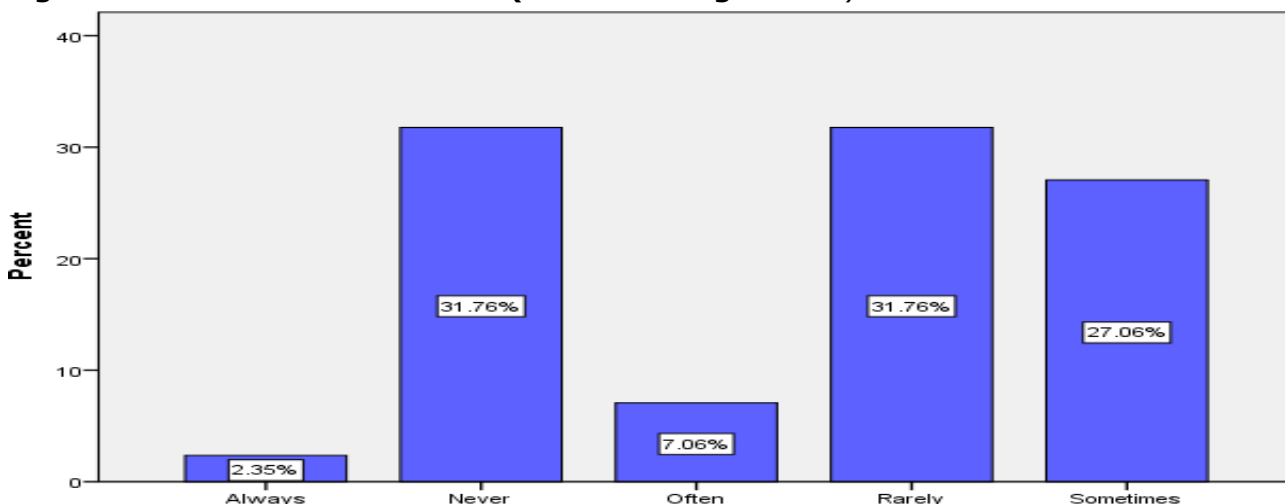
Table 1: Descriptive Demographics

Variables	Percentage (%)
Age	
Below 22 years of age	74.6%
Above 22 years of age	25.9
Gender	
Female	46.5
Male	53.5
Residential Status	
Day Scholar	48.8
Hostelites	51.2
Exercise	
People who exercise regularly	21.76%
People who do not exercise regularly	78.34%
Sports Distribution	
Participation in indoor games	51.76%
Participation in outdoor games	32.94%
Participation in both games	15.92%
Usage of Electronic devices in lockdown	
Mobile & Laptop	55.89
Mobile	38.24
Laptop	2.94
Tablets, Xbox, Play station	0.59
Physical activity	
Physical activity affected during lockdown	77.65%
Physical activity not affected during lockdown	22.35%
Sports activity	
Sports activity affected during lockdown	61.76%
Sports activity not affected during lockdown	38.24%
Effect on Mental Health	
Fear of having corona	68.24%
No fear of having corona	31.76%
Fear of catching corona	75.88%
No fear of catching corona	24.12%
Availability of health services	62.35
No availability of health services	37.65

Figure 1: People whose physical activity was affected during Lockdown



Figure 2: Effect on Mental Health (fear of having corona)



4. Discussion

The findings of this study underscore the significant impact of the COVID-19 pandemic on the physical activity and mental health of Pakistani medical undergraduates aged 18 to 25. The challenges presented by the lockdown have led to a substantial rise in sedentary behaviors and a decrease in physical activity levels among the surveyed participants (Salman et al., 2020). The implications of these findings extend beyond individual well-being and have broader ramifications for medical education programs (Ammar et al., 2020). Firstly, the overwhelming majority of respondents acknowledged the negative impact of the lockdown on their physical activity, with only a small percentage reporting unaffected routines. This stark reality emphasizes the need for targeted interventions within medical education programs to address the unique challenges posed by the pandemic. As medical students are future healthcare providers, their well-being is critical not only for their personal health but also for their effectiveness as caregivers (Kantomaa, Tammelin, Näyhä, & Taanila, 2007).

The decline in regular exercise habits, reported by nearly 78% of participants, suggests a need for proactive measures to encourage and facilitate physical activity within the medical education curriculum. Incorporating physical wellness initiatives into the academic framework can promote healthier lifestyles among students. This may include virtual fitness programs, guidance on home-based exercises, or partnerships with fitness professionals to deliver tailored sessions (Bore et al., 2016). The shift in preferences from outdoor to indoor games during lockdown highlights the adaptability of physical activity choices (Lai, Shih, Ko, Tang, & Hsueh, 2020). Medical education programs can leverage this insight by promoting indoor fitness options that align with students' preferences and limitations. Integrating virtual platforms for indoor workouts or collaborative online fitness challenges can offer engaging alternatives to traditional outdoor activities (Gallè et al., 2020). Regression analysis revealing associations with age, parental physical activity levels, and gender emphasizes the need for personalized approaches in promoting physical activity among medical students. Tailoring interventions based on demographic factors can enhance their effectiveness. For instance, creating age-specific fitness modules, involving parents in awareness campaigns, and addressing gender-specific barriers can contribute to a more comprehensive strategy.

The significant increase in sedentary behavior, particularly in the use of electronic devices, warrants attention. Medical education programs should acknowledge the influence of technology on students' lifestyles and explore ways to integrate physical activity breaks within online learning environments. Encouraging short, active breaks during virtual lectures or incorporating interactive, fitness-oriented content into e-learning platforms can mitigate the negative impact of extended screen time (Gallè et al., 2019). The observed mental health considerations, including anxiety about COVID-19, underscore the need for holistic support within medical education (Hou et al., 2020). While the average anxiety levels in this study were below the cut-off scores, the potential for distress remains, and medical education programs should be proactive in addressing mental health challenges (Kaur, Singh, Arya, & Mittal, 2020). Integrating mental health awareness campaigns, providing easy access to counseling services, and incorporating resilience-building components into the curriculum can contribute to a more

supportive learning environment (Nakhostin-Ansari et al., 2020). In conclusion, the practical implications of this study for medical education programs are multifaceted. The observed decline in physical activity among medical students during the pandemic necessitates a comprehensive, tailored approach to promote and support healthier lifestyles. By integrating physical wellness initiatives, addressing demographic-specific challenges, and acknowledging the impact of technology on sedentary behavior, medical education programs can play a pivotal role in fostering the well-being of future healthcare professionals. Embracing these strategies not only contributes to the immediate health of medical students but also enhances their resilience and adaptability in facing future challenges, both within and beyond their professional roles.

4.1. Limitations

Firstly, it is a cross-sectional study so there is a need for longitudinal or experimental research. Recall bias can be present. The limited sample size and notably the low percentage of females in the sample are further limitations of this study, and additional research is needed. Another drawback is that it focuses on a sample of undergraduate medical students from several medical universities in Lahore who represent a particular population group in order to examine their way of life. As a result, the conclusions cannot be applied to all Pakistani medical students. Furthermore, the current study did not ask about eating habits, which would have revealed further crucial information about the lockdown. This study was purposefully focused on sedentary behaviours and physical activity. Additionally, this sample had higher levels of education than Pakistan's general populace. Despite the fact that this study accurately depicts the typical educated person in Lahore, it is not generalizable to other parts of Pakistan, particularly to areas with fewer resources and an average population with lower levels of education. This is especially true given the well-established link between education levels and stress.

5. Conclusion

In conclusion, this study sheds light on the noteworthy decline in physical activity levels among Pakistani medical students during the COVID-19 pandemic-related lockdown. Despite the challenging circumstances of confinement, the data suggests that maintaining an active lifestyle, especially for those who were previously active, was linked to achieving the recommended levels of physical exercise. The implications of these findings extend beyond the immediate health of medical students and hold valuable insights for medical education, mental health support, and future research endeavors.

5.1. Key Takeaway Messages

Promoting Active Lifestyles During Pandemics: The study underscores the importance of encouraging and maintaining an active lifestyle even during pandemic-related lockdowns. As medical students exhibited decreased physical activity levels, emphasizing the significance of staying physically active during such periods becomes crucial for their overall well-being.

Link Between Previous Activity and Exercise Compliance: The correlation between being previously active and achieving recommended exercise amounts highlights the enduring benefits of establishing healthy habits. Medical education programs could integrate initiatives to foster and sustain physical activity among students, recognizing its potential role in resilience during challenging times.

Mental Health Impact: The study acknowledges the broader impact of the pandemic and associated countermeasures on mental health. While mental health concerns were prevalent, they were lower than anticipated, emphasizing the resilience of medical students. This resilience should not overshadow the need for ongoing mental health support within medical education programs.

Significance for Medical Education: The decline in physical activity among medical students during the pandemic signifies the necessity for medical education programs to incorporate holistic well-being initiatives. Integrating physical activity modules, mental health awareness, and resilience-building components into the curriculum can contribute to a more comprehensive and supportive learning environment.

5.2. Future Recommendations

a. Interventions for Physical Activity: Future research could explore effective interventions aimed at promoting and sustaining physical activity among medical students during periods of restricted mobility. This could involve tailored virtual fitness programs, awareness campaigns, and strategies to overcome barriers to exercise during lockdowns.

b. Long-Term Impact on Health: Investigating the long-term health implications of reduced physical activity during the pandemic is crucial. Understanding how lifestyle changes during lockdowns may contribute to future health outcomes can inform preventive measures and health promotion initiatives.

c. Mental Health Support Strategies: Further research can delve into effective strategies for providing mental health support to medical students during times of crisis. This includes evaluating the impact of counseling services, resilience-building programs, and technology-assisted interventions.

In navigating the challenges posed by the pandemic, the lessons learned from this study emphasize the need for a holistic approach to medical education. Beyond imparting medical knowledge, medical education programs should actively promote physical and mental well-being, recognizing the interplay between these factors in preparing resilient and adaptable healthcare professionals for the future.

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