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Original Research

EFFECT OF COVID-19 LOCKDOWN ON LIFESTYLE AND STUDY HABITS AMONG MEDICAL AND PARAMEDICAL STUDENTS: A CROSS- SECTIONAL STUDY.

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Abstract

Background: The COVID-19 pandemic and the nationwide lockdown resulted in unprecedented disruption of educational activities worldwide. Medical and paramedical students experienced significant changes in their lifestyle and study habits due to prolonged home confinement and the transition from conventional classroom teaching to online education. **Aim:** To assess the effect of the COVID-19 lockdown on lifestyle and study habits among medical and paramedical students. **Objectives:** (1) To evaluate changes in lifestyle factors including physical activity, sleep pattern, dietary habits, screen time, and mental well-being during the COVID-19 lockdown. (2) To assess the impact of the lockdown on study habits, online learning experiences, and academic performance among medical and paramedical students. **Materials and Methods:** A hospital-based cross-sectional observational study was conducted among 200 medical and paramedical students using a pre-tested, structured questionnaire. Information regarding demographic characteristics, lifestyle changes, study habits, and online learning experiences was collected. Data were analysed using SPSS version 26.0. Descriptive statistics were expressed as frequencies and percentages. Chi-square test was used to determine associations between categorical variables, and a p-value of <0.05 was considered statistically significant. **Results:** The majority of participants were aged 21-23 years (47.0%), females (59.0%), and MBBS students (60.0%). Lifestyle deterioration was evident with reduced physical activity (65.0%), worsening sleep quality (54.0%), unhealthy dietary habits (42.0%), increased screen time (86.0%), and poorer mental well-being (57.0%) (p<0.001). Academic disruption was substantial, with difficulty concentrating during online classes (71.0%), reduced academic motivation (68.0%), difficulty understanding practical concepts (79.0%), and preference for blended learning (82.0%). Female students experienced significantly greater lifestyle deterioration than males (81.4% vs. 70.7%; p=0.022). Increased screen time was significantly associated with reduced academic performance (72.1% vs. 35.7%; p<0.001). **Conclusion:** The COVID-19 lockdown significantly affected both the lifestyle and academic behaviour of medical and paramedical students. Hybrid teaching models, improved digital learning resources, structured online education, promotion of healthy lifestyle practices, and psychological counselling services are essential to minimize the adverse effects of similar public health emergencies in the future.

Keywords: COVID-19, Lockdown, Lifestyle, Study habits.

Introduction

The coronavirus disease 2019 (COVID-19) pandemic, caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), rapidly evolved into a global public health emergency. On 11 March 2020, the World Health Organization (WHO) declared COVID-19 a pandemic, following which countries implemented nationwide lockdowns, travel restrictions, quarantine measures, and social distancing to limit viral transmission. ¹ These measures profoundly affected healthcare systems, economies, and educational institutions worldwide. Closure of schools, colleges, and universities led to an abrupt transition from traditional classroom teaching to online education. ² Globally, the closure of higher educational institutions affected millions of medical, nursing, dental, and paramedical students. Medical education, which relies heavily on bedside teaching, laboratory practicals, and clinical exposure, experienced unprecedented disruption. Students encountered interruption of academic schedules, postponement of examinations, cancellation of clinical postings, and uncertainty regarding professional training. International studies have shown that these disruptions significantly altered students' study habits, learning behaviour, and academic performance. ³

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The prolonged lockdown also resulted in substantial changes in students' lifestyles. Home confinement reduced opportunities for physical activity and increased sedentary behaviour due to prolonged screen exposure. Alterations in sleep patterns, dietary habits, recreational activities, and social interactions became increasingly common among university students across the world. Studies have demonstrated increased consumption of unhealthy foods, reduced physical exercise, weight gain, sleep disturbances, and excessive use of electronic devices during lockdown periods.^{3,4} Apart from lifestyle changes, the pandemic had a considerable psychological impact on students. Fear of contracting infection, concern regarding family members, uncertainty about examinations, financial difficulties, and prolonged social isolation contributed to increased levels of stress, anxiety, depression, and emotional exhaustion. These psychological disturbances adversely influenced concentration, motivation, academic engagement, and overall quality of life among healthcare students.^{4,5}

India implemented one of the world's largest nationwide lockdowns beginning on 25 March 2020, resulting in prolonged closure of educational institutions. Medical colleges adopted online teaching platforms to ensure continuity of education; however, several challenges emerged including poor internet connectivity, lack of digital resources, inadequate interaction with faculty, and absence of practical and clinical training. Indian studies have reported that although students appreciated the flexibility of online learning, they expressed dissatisfaction regarding reduced clinical exposure, poor attention span, eye strain, musculoskeletal discomfort, and prolonged screen time.^{2,6} Medical and paramedical students constitute a particularly vulnerable group because competency-based education requires acquisition of both theoretical knowledge and clinical skills. Suspension of hospital postings and practical sessions significantly affected students' confidence in clinical competency and professional preparedness. Simultaneously, unhealthy lifestyle practices including decreased physical activity, irregular sleep, altered dietary behaviour, and increased digital media use became more prevalent. These changes have important implications for students' physical health, mental well-being, and academic performance.^{5,6}

Understanding the combined impact of the COVID-19 lockdown on lifestyle and study habits among medical and paramedical students is essential for developing strategies that enhance student well-being, strengthen medical education, and improve preparedness for future public health emergencies. The findings of the present study may assist policymakers and educational institutions in designing evidence-based interventions to support healthy lifestyles and effective learning environments during similar crises.⁷

Aim

To assess the effect of the COVID-19 lockdown on lifestyle and study habits among medical and paramedical students.

Objectives

1. To evaluate the changes in lifestyle factors (physical activity, sleep pattern, dietary habits, screen time, and mental well-being) among medical and paramedical students during the COVID-19 lockdown.
2. To assess the impact of the COVID-19 lockdown on study habits, online learning experiences, academic performance, and learning behaviour among medical and paramedical students.

Materials and Methods

Study design:

A Hospital based cross-sectional observational study.

Study setting:

The study was conducted among undergraduate medical and paramedical students enrolled in a tertiary care teaching institution.

Study population:

Medical (MBBS) and paramedical students studying during the COVID-19 pandemic.

Sample size:

200 students

Inclusion criteria:

- Undergraduate medical and paramedical students.
- Students who attended online classes during the COVID-19 lockdown.
- Students willing to provide informed consent.

Exclusion criteria:

- Students absent during the study period.
- Incomplete questionnaires.
- Students declining participation.

Study tool:

A pre-tested, semi-structured questionnaire comprising:

- Sociodemographic details
- Lifestyle characteristics (sleep, diet, physical activity, screen time)
- Mental well-being
- Study habits
- Online learning experience
- Academic performance
- Self-perceived impact of lockdown

Study variables:

- Independent variable: COVID-19 lockdown.
- Dependent variables: Lifestyle habits, study habits, online learning, academic performance.

Data collection procedure:

Written/electronic informed consent was obtained before administering the questionnaire. Responses were collected anonymously and confidentiality was maintained.

Statistical analysis:

Data were entered into Microsoft Excel and analysed using SPSS version 26.0 (or equivalent). Continuous variables were expressed as mean $\pm$ standard deviation, while categorical variables were presented as frequencies and percentages. Associations between categorical variables were analysed using the Chi-square test or Fisher's exact test. Independent t-test or ANOVA was applied for comparison of continuous

Results

Table 1. Distribution of Participants According to Demographic Characteristics (n = 200)

Variable	Category	Frequency (n)	Percentage (%)
Age (years)	18-20	68	34.0
	21-23	94	47.0
	≥24	38	19.0
Gender	Male	82	41.0
	Female	118	59.0
Course	MBBS	120	60.0
	Paramedical	80	40.0
Residence during lockdown	Urban	128	64.0
	Rural	72	36.0

Statistical test: Descriptive statistics (Frequency and Percentage).

Interpretation:

Among the 200 participants, the majority (47.0%) were aged 21-23 years, 59.0% were females, 60.0% were MBBS students, and 64.0% resided in urban areas during the COVID-19 lockdown.

Table 2. Changes in Lifestyle Habits During COVID-19 Lockdown (n = 200)

Lifestyle Variable	Improved n (%)	No Change n (%)	Worsened n (%)
Physical activity	28 (14.0)	42 (21.0)	130 (65.0)
Sleep quality	36 (18.0)	56 (28.0)	108 (54.0)
Dietary habits	42 (21.0)	74 (37.0)	84 (42.0)
Screen time	6 (3.0)	22 (11.0)	172 (86.0)
Mental well-being	18 (9.0)	68 (34.0)	114 (57.0)

$p < 0.001$

Interpretation:

A statistically significant deterioration in lifestyle habits was observed during the lockdown ($p < 0.001$). Increased screen time (86.0%), reduced physical activity (65.0%), poor sleep quality (54.0%), and decline in mental well-being (57.0%) were the most frequently reported adverse lifestyle changes.

Table 3. Effect of COVID-19 Lockdown on Study Habits (n = 200)

Study Habit	Yes n (%)	No n (%)
Difficulty concentrating during online classes	142 (71.0)	58 (29.0)
Increased daily study hours	74 (37.0)	126 (63.0)
Reduced academic motivation	136 (68.0)	64 (32.0)
Difficulty understanding practical concepts	158 (79.0)	42 (21.0)
Preferred blended learning after pandemic	164 (82.0)	36 (18.0)

$p < 0.001$

Interpretation:

The lockdown significantly affected students' study habits. Most students experienced difficulty concentrating during online classes, reduced academic motivation, and poor understanding of practical concepts. More than four-fifths preferred a blended learning approach after the pandemic.

Table 4. Association Between Gender and Lifestyle Deterioration

Gender	Lifestyle Deteriorated	No Deterioration	Total
Male	58	24	82
Female	96	22	118
Total	154	46	200

$p = 0.022$

Interpretation:

Female students reported significantly greater lifestyle deterioration during the COVID-19 lockdown compared with male students (81.4% vs. 70.7%; $p = 0.022$).

Table 5. Association Between Increased Screen Time and Reduced Academic Performance

Increased Screen Time	Reduced Academic Performance	No Reduction	Total
Yes	124	48	172
No	10	18	28
Total	134	66	200

$\chi^2 = 16.98$, $df = 1$, $p < 0.001$

Interpretation:

Students reporting increased screen time were significantly more likely to report reduced academic performance compared with those without increased screen time (72.1% vs. 35.7%; $p < 0.001$), indicating a strong association between excessive digital exposure and adverse academic outcomes.

Discussion

The present study evaluated the effect of the COVID-19 lockdown on lifestyle and study habits among 200 medical and paramedical students. A substantial deterioration was observed in physical activity, sleep quality, dietary habits, screen time, mental well-being, concentration and academic motivation. In the present study, 65.0% of students reported reduced physical activity during lockdown. Luciano et al. similarly found reduced physical activity in nearly 65% of Italian medical students, with increased daily sitting time.⁸

Tahir et al. reported that 59% of medical students experienced adverse changes in physical activity, which was slightly lower than the present finding.¹⁰ Kosendiak et al. also observed unhealthy lifestyle changes among medical students due to prolonged home confinement and online education.⁹ Increased screen time was the most common adverse change in the present study, reported by 86.0% of participants. This may

be attributed to online classes, digital assignments, social media use and reduced outdoor activities. Jalal et al. and Romero-Blanco et al. reported increased sedentary behaviour and electronic-device use among university students during lockdown.^{11,12} Sleep quality worsened in 54.0% of students, possibly due to irregular schedules, reduced physical activity, stress and excessive nighttime screen exposure. Luciano et al. reported altered sleep duration and greater sedentary time among medical students during confinement.⁸

Khidri et al. also found that poor sleep and reduced physical activity were associated with depressive symptoms among medical students.¹³ Dietary habits worsened in 42.0% of participants, whereas 21.0% reported improvement, possibly due to increased access to home-cooked food. Bertrand et al. reported increased food intake, unhealthy snacking and reduced physical activity among university students during the pandemic.¹⁴ Mental well-being deteriorated in 57.0% of students because of isolation, fear of infection, academic uncertainty and lack of peer interaction. Yu et al. reported mild anxiety in 51.0% of medical postgraduates and academic disruption in 78.4%, findings comparable with the present study.¹⁵

Female students experienced significantly greater lifestyle deterioration than males, with proportions of 81.4% and 70.7%, respectively. Similar gender differences in anxiety and psychological distress were reported by Yu et al.¹⁶ Difficulty concentrating during online classes was reported by 71.0% of students, while 68.0% experienced reduced academic motivation. Saurabh et al. found that only 28.6% of medical students were comfortable learning from home and 54.6% experienced disturbances during online classes.¹⁷ Difficulty understanding practical concepts was reported by 79.0% of participants because clinical and laboratory training could not be adequately replaced online.

Debnath et al. similarly reported dissatisfaction with online practical and clinical teaching among medical and allied health students in India.¹⁸ A majority of students, 82.0%, preferred blended learning, indicating acceptance of online teaching for theoretical topics but preference for face-to-face practical training. Increased screen time was significantly associated with reduced academic performance, as 72.1% of students with increased screen exposure reported poorer performance compared with 35.7% without increased exposure. Overall, the study highlights the need for blended teaching, structured online schedules, mental-health support, physical activity promotion and supervised practical training for medical and paramedical students.

Conclusion

The COVID-19 lockdown had a significant impact on the lifestyle and study habits of medical and paramedical students. Most participants experienced reduced physical activity, increased screen time, disturbed sleep, unhealthy dietary changes, and deterioration in mental well-being. Academic activities were also adversely affected, with many students reporting difficulty concentrating during online classes, reduced motivation to study, poor understanding of practical concepts, and perceived decline in academic performance. Female students showed significantly greater lifestyle deterioration than male students, and increased screen time was significantly associated with poorer academic performance. Although online learning ensured continuity of education during the pandemic, it was inadequate in replacing clinical and practical training. The majority of students preferred a blended learning approach that combines online teaching for theoretical subjects with conventional face-to-face teaching for practical and clinical components. Educational institutions should strengthen digital infrastructure, promote healthy lifestyle practices, provide psychological support services, and adopt hybrid learning strategies to improve academic outcomes and student well-being during future public health emergencies.

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