



## Long-term Impacts of COVID-19 on undergraduate students: An analytical study

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### Abstract

The COVID-19 pandemic disrupted global education systems, with undergraduates among the most affected groups. Many studies have examined the positive and negative impacts of COVID-19 on students. However, only a limited number of studies have focused on its long-term effects, particularly on students' study patterns, mental health, learning approaches, and overall academic experiences. This study specifically addresses these long-term impacts of COVID-19 on undergraduate students. This study analyses the long-term academic, psychological, and social impacts of the pandemic on undergraduate students in Delhi. Using a descriptive design and data collected from 30 students, findings highlight mixed experiences with online learning, reduced peer interaction, increased mental stress, and lingering academic and social challenges post-pandemic. The research also uncovers opportunities for technological adaptation, flexible learning, and personal growth. The paper concludes with recommendations for hybrid learning, mental health support, and policy-level reforms to enhance resilience in higher education.

**Keywords:** Covid-19, undergraduates, online learning, post-pandemic challenges, hybrid education, mental health, digital adaptation

### Introduction

The outbreak of COVID-19 in late 2019 led to unprecedented disruptions in higher education worldwide. For undergraduates, the abrupt transition from in-person to online education brought challenges in engagement, access, and mental well-being. Even after the return to physical classrooms, the aftereffects of this disruption continue to shape academic and social experiences. Many faced issues such as limited access to technology, loss of peer interaction, increased stress levels, and uncertainties regarding career prospects. Existing literature highlights the short-term effects of the pandemic on students, but fewer studies have examined the long-term impacts. The objective of this study is to bridge that gap by analysing the academic, psychological, and social consequences of COVID-19 on undergraduate students. This paper aims to evaluate these long-term impacts with a focus on students in Delhi, providing insights for educators and policymakers.

### Literature Review

**Academic Adaptation:** Research shows that hybrid and flexible learning models have improved accessibility but demand stronger digital infrastructure (Gupta & Mehta, 2023) [1].

**Mental Health:** Anxiety, isolation, and academic burnout remain prevalent among students even after the pandemic's peak, necessitating institutional mental health support (Kumar *et al.*, 2024) [2].

**Digital Competence:** The forced shift to online platforms improved technological proficiency, but widened the digital divide between socio-economic groups (Sharma & Roy, 2023) [3].

**Employment Prospects:** Studies highlight that internships and job readiness for graduates were significantly disrupted,

though remote work opportunities helped bridge some gaps (Singh & Arora, 2022) [4].

**Resilience & Innovation:** Students demonstrated adaptability and innovation by leveraging online certifications and entrepreneurial opportunities (Patel & Das, 2024) [7].

**Learning Outcomes and Engagement:** Online education has been effective in continuing learning during disruptions, but students reported reduced motivation, engagement, and interaction compared to face-to-face classrooms (Patel & Singh, 2022) [5].

**Equity in Education:** While online learning created opportunities for remote access, marginalized students faced greater barriers due to lack of resources, leading to unequal learning experiences (Das & Chatterjee, 2023).

**Skill Development and Employability:** The pandemic highlighted the importance of digital literacy, problem-solving, and adaptability, but many undergraduates felt underprepared for the evolving job market (Rao, 2024) [6].

### Methodology

#### Research Design

This study employed a descriptive research design, as the objective was to understand and describe the long-term impacts of COVID-19 on undergraduate students. A descriptive design is appropriate for capturing respondents' perceptions, experiences, and opinions without manipulating variables.

#### Population

The target population for the study comprised undergraduate students enrolled at Delhi University's North Campus. This population was selected because students from this area

represent a diverse academic and socio-economic background, making them suitable for examining the varied impacts of the pandemic on higher education.

**Sample Size and Sampling Technique**

A total of 30 respondents participated in the study. Due to accessibility and time constraints, convenience sampling was adopted. This method was considered suitable for gathering quick insights from readily available participants, though it comes with the limitation of reduced generalizability.

**Instrument**

Data were collected using a structured questionnaire designed through Google Forms. The questionnaire included both closed-ended questions (to generate quantitative data such as frequency and percentages) and open-ended questions (to allow respondents to elaborate on their personal experiences, challenges, and coping mechanisms).

This combination ensured a balanced collection of both statistical data and descriptive insights.

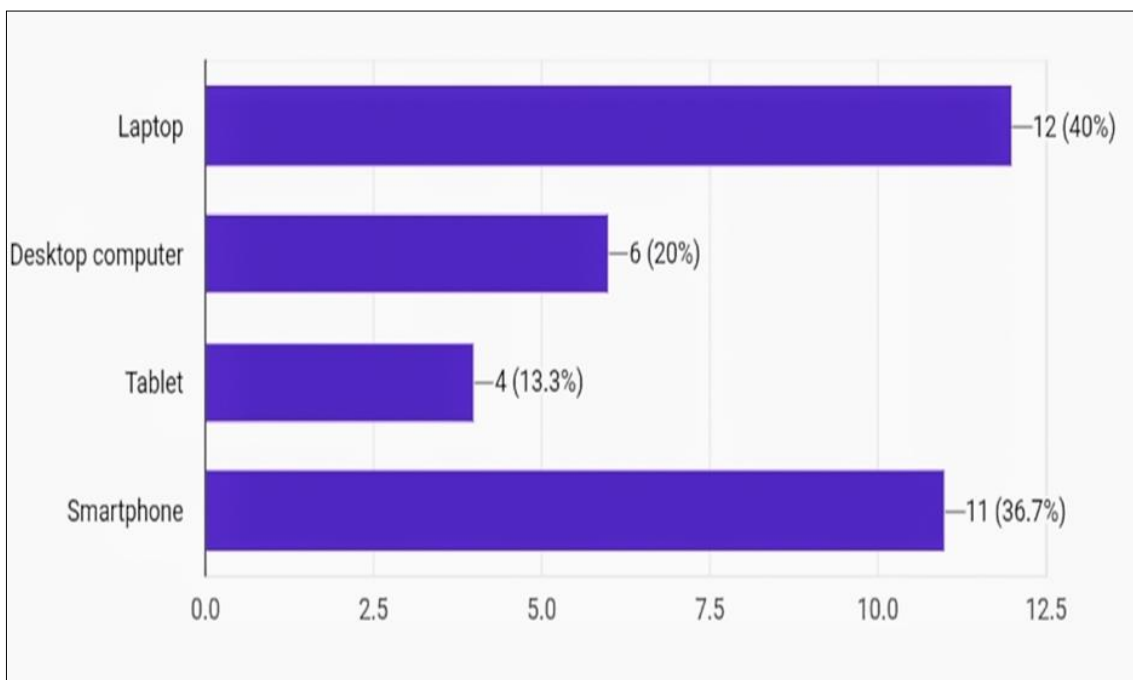
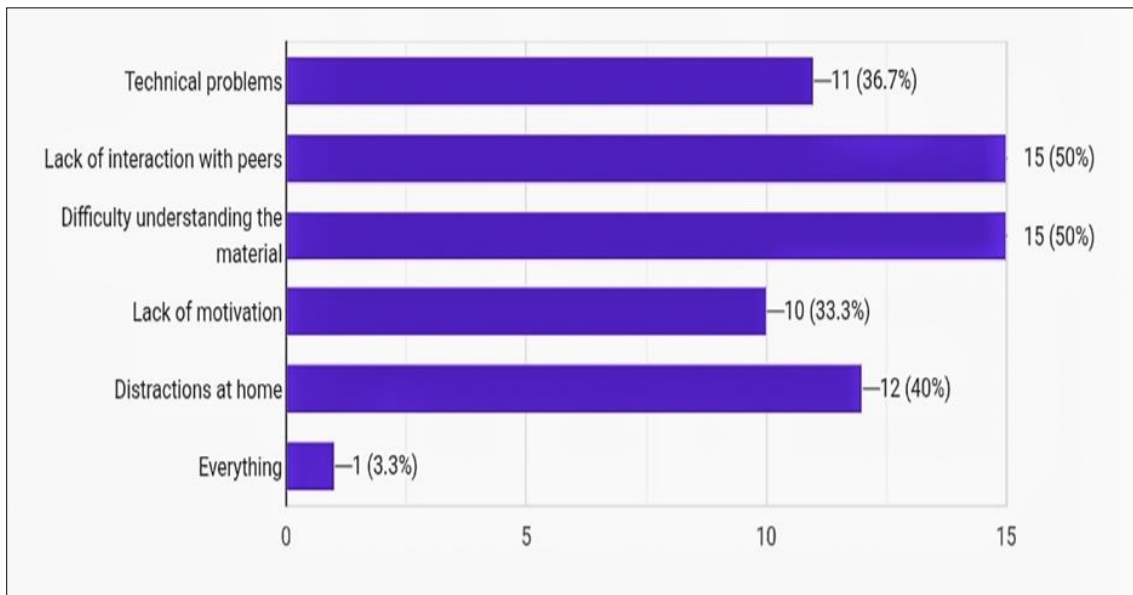
**Data Analysis**

The collected responses were analysed using a combination of descriptive statistics (percentages, frequencies, and graphical representations) for quantitative data, and thematic analysis for qualitative inputs. Descriptive statistics helped in identifying general patterns, while thematic analysis allowed for deeper exploration of recurring themes such as mental health concerns, changes in study habits, and digital learning experiences.

**Findings & Discussion**

▪ **Academic Impact**

Majority reported reduced engagement during online classes; 50% found interaction with peers and instructors challenging. Return to in-person classes improved learning outcomes but required a period of adjustment.



▪ **Technological Adaptation**

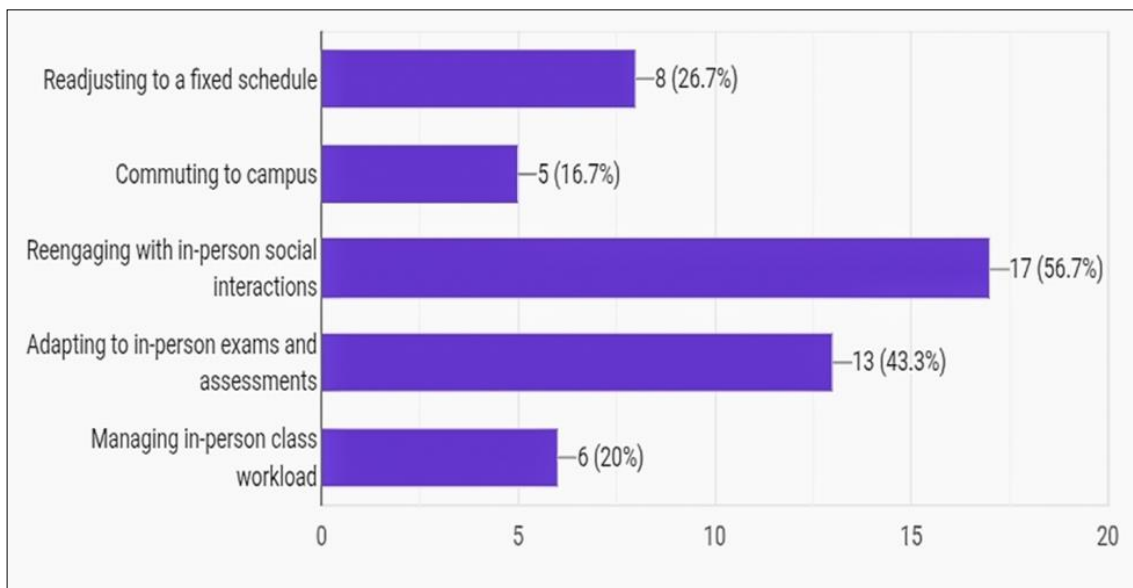
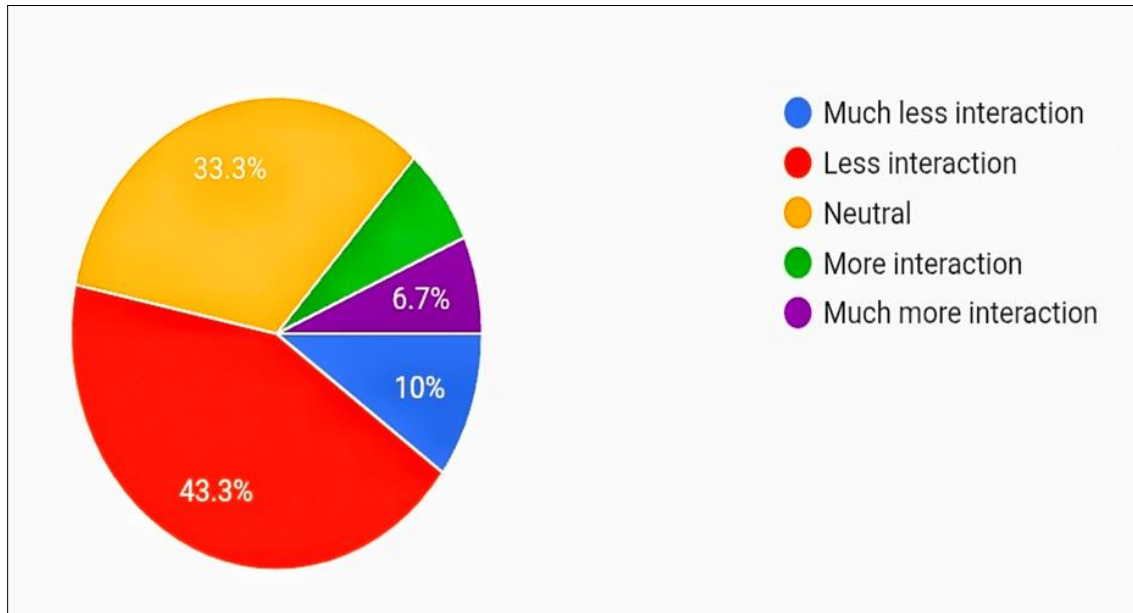
40% relied on laptops; 36.7% on smartphones. Technological skills improved but inequities in device and internet access persisted.

▪ **Mental Health Concerns**

▪ High levels of stress and anxiety were reported during lockdowns, with lingering effects such as reduced focus and social anxiety.

▪ **Social Interaction**

Peer interaction decreased for 53.3% of students' post-pandemic, affecting their overall college experience.



▪ **Most challenging transition**

The most challenging transition for students was to reengage with in-person social interactions. 56.7% students found this change challenging and 43.3% students found it difficult to adapt to in-person exams and assessments.

▪ **Positive Opportunities**

Access to online resources and flexible learning schedules were appreciated. Students utilized time to gain certifications and skills, enhancing employability

▪ **Digital Dependence in Learning**

A large number of students reported that even after the pandemic, they continue to rely more on online resources, e-materials, and recorded lectures than on traditional

classroom notes. This reflects a shift in study habits towards digital platforms.

▪ **Decline in Social Interaction Skills**

Many respondents shared that prolonged isolation during the pandemic has affected their ability to confidently participate in group discussions, interact with peers, or engage in extracurricular activities.

▪ **Learning Gaps**

Students highlighted that concepts taught during the online period were not fully understood, especially in practical or application-based subjects. These gaps are still affecting their academic performance.

### ▪ Concerns About Career Readiness

Respondents expressed worries about job preparedness due to the lack of internships, skill development opportunities, and practical exposure during the pandemic years. This uncertainty still influences their career outlook.

### Conclusion

The study highlights that the COVID-19 pandemic has left lasting academic, social, and psychological effects on undergraduate students. Findings reveal that nearly half of the respondents reported reduced engagement during online classes, with many continuing to rely on digital resources even after the pandemic. Mental health concerns, particularly anxiety and stress, remain a persistent challenge, alongside difficulties in rebuilding peer relationships and social interaction. About 53.3% of students admitted to struggling with reduced peer interaction, while 56.7% found it difficult to re-engage in face-to-face social settings, and 43.3% reported challenges in adapting to in-person examinations and assessments. Moreover, learning gaps caused by online education, declining confidence in group participation, and fears of inadequate career preparedness further illustrate the long-term impact. At the same time, the pandemic has also heightened awareness of mental health and encouraged students to seek emotional well-being support. Altogether, these insights reflect that the disruptions of the pandemic were not temporary but have reshaped students' learning patterns, social behavior, and academic progression in significant ways.

### Recommendations

To address these long-term challenges, academic institutions should adopt a blended learning model that combines the accessibility of digital platforms with the benefits of face-to-face engagement. Regular mental health counselling and peer-support programs must be strengthened to help students rebuild confidence and cope with stress. Bridging courses and remedial sessions can be introduced to close the academic gaps created during online learning. Institutions should also focus on skill-based training, internships, and practical exposure to enhance career readiness. Finally, fostering inclusive peer activities and group projects can help students regain social interaction skills and adapt better to in-person learning environments.

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