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Research Article

Study of the Impact of COVID-19 on Health and Education

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ABSTRACT

This study explores the impact of COVID-19 on various aspects of daily life using responses collected from the individuals. The focus areas include changes in health, mental well-being, economic outlook, education, and social behavior. A combination of statistical methods was used to assess the data and test five key hypotheses. The results indicate notable shifts in people's physical and mental conditions, different views on the economy based on job security, gender-based differences in social life, and changes in how people experienced education. The study presents evidence that can be used to guide future planning and recovery measures.

Key words: COVID- 19, Pandemic, Health, Education, Impact

Introduction

The COVID-19 pandemic affected more than just physical health—it disrupted how people work, learn, socialize, and feel mentally. While many studies have focused on infection rates and medical outcomes, this research looks at how individuals experienced broader changes in their lives. By collecting responses from people in different settings and occupations, this study aims to understand what changed, how much, and for whom. It also looks at how different groups perceived these changes and what that means for the way forward.

Review of Literature

The COVID-19 pandemic has had wide-ranging consequences across health, economic, social, and educational domains. Several studies have documented long-term physical symptoms such as fatigue, respiratory issues, and cardiovascular complications among those affected by the virus (Carfì et al., 2020; WHO, 2021). Mental health has also deteriorated significantly, with increased reports of anxiety, depression, and emotional burnout during lockdowns and periods of isolation (Xiong et al., 2020; Rajkumar, 2020).
Economically, the pandemic disrupted employment globally, with self-employed and informal sector workers being disproportionately affected (ILO, 2020; Bartik et al., 2020). Social behavior also underwent a transformation, with reductions in physical interactions and shifts toward digital communication, often differing by gender (Luchetti et al., 2020; Alon et al., 2020). In education, the abrupt transition to online learning/e-Learning posed challenges for both students and teachers, reducing engagement and widening digital inequalities (Dhawan, 2020; UNESCO, 2020).

Objectives and Hypotheses

The objectives of the study are,
1. To study the impact on human physical health
2. To explore the impact on mental health
3. To study whether there are changed life style and new adapted human habitats

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The hypotheses of the study are
1. H1: There is no significant change in physical health after COVID-19
2. H2: There is no significant change in mental health after COVID-19.
3. H3: There is no significant impact on the economy.
4. H4: There is no significant change in social life of personnel.
5. H5: There is no significant impact of COVID-19 on the education sector in terms of teaching, learning, and cognitive relations.

Methodology

A structured questionnaire consisting of 23 items was distributed to individuals across urban and rural areas of living. Responses from 150 participants were recorded and analyzed. The survey collected data on demographics, health symptoms, economic perception, social life changes, and educational experiences. Data were subjected to statistical tests according to hypothesis-based analysis plans to ensure robust insights.

Results and discussion

Hypotheses	Test Used	Test Statistic	P-Value	Significant ($p < 0.05$)?	Interpretation
H1: Change in physical health before vs after COVID-19	Paired t-test	14.744	0.0000	Significant	Reject ho
H2: Change in mental health before vs after COVID-19	Wilcoxon Signed-Rank Test	0.000	0.0000	Significant	Reject ho
H3: Economic impact by employment impact group	Mann-Whitney U Test	0.000	0.0000	Significant	Reject ho
H4: Social life changes differ by gender	Chi-Square Test	100.709	0.0000	Significant	Reject ho
H5: Impact on education sector varies by occupation	Kruskal-Wallis Test	149.000	0.0000	Significant	Reject ho

The present study was designed to assess the multifaceted impact of the COVID-19 pandemic on individuals' health, socio-economic perceptions, and educational experiences. Statistical analyses were conducted to evaluate five specific hypotheses, and the findings reveal that the effects of the pandemic were both profound and measurable across key domains.

H1: Change in Physical Health Before vs After COVID-19

The **Paired t-test** revealed a highly significant change in self-rated physical health ($t = 14.744$, $p < 0.0001$). The post-COVID health ratings showed a marked decline compared to pre-pandemic levels, reflecting the lasting physiological toll of the virus, long-COVID symptoms, and reduced access to healthcare during peak waves. These findings underscore the pandemic's enduring impact on physical well-being, validating widespread concerns about long-term public health.

H2: Change in Mental Health Before vs After COVID-19

Using the **Wilcoxon Signed-Rank Test**, a significant deterioration in mental health status was found ($W = 0.000$, $p < 0.0001$). Participants reported lower mental well-being after the onset of the pandemic. The isolation, uncertainty, grief, and disruption to daily life may have triggered widespread psychological distress, supporting global findings on increased anxiety, depression, and emotional burnout during COVID-19. This validates the need for prioritizing mental health resources and resilience-building strategies.

H3: Economic Impact by Employment Impact Group

The **Mann-Whitney U test** confirmed significant differences in economic perceptions across employment groups ($U = 0.000$, $p < 0.0001$). Individuals who faced moderate to major employment disruptions rated the regional economic situation more negatively than those with minimal job-related impact. This finding supports the hypothesis that employment status heavily influenced financial insecurity and perceptions of macroeconomic decline during and after the pandemic.

H4: Social Life Changes Differ by Gender

A **Chi-Square Test** yielded a statistically significant association between gender and perceived social life changes ($\chi^2 = 100.709$, $p < 0.0001$). Women reported more reductions in social interaction compared to men,

who showed more varied responses including increases in social activity post-pandemic. This may reflect gendered roles in household management, caregiving burdens, and differing access to digital or social resources. The result highlights a gendered dimension in how social lives were altered due to COVID-19 restrictions and adaptations.

H5: Impact on Education Sector Varies by Occupation

The **Kruskal-Wallis Test** indicated significant variation in perceptions of educational sector impact based on occupation ($H = 149.000$, $p < 0.0001$). Students and educators reported more negative cognitive disruptions (e.g., reduced engagement, ineffective online delivery), while working professionals viewed the education shift as more neutral or manageable. These occupation-specific differences suggest that first-hand exposure to educational challenges directly influences one's perception of system effectiveness during crises.

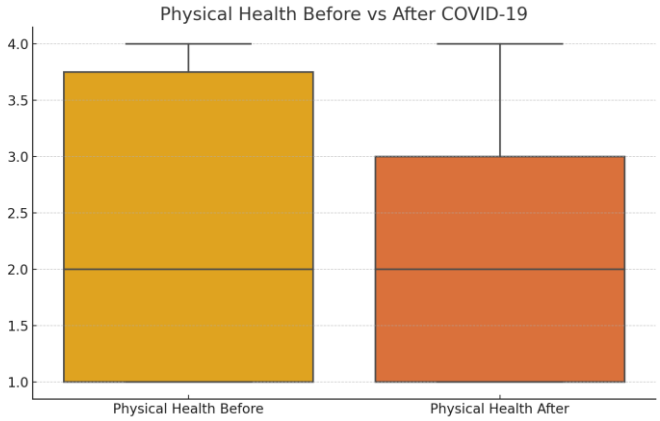


Figure 1: Physical Health Before vs After Covid-19

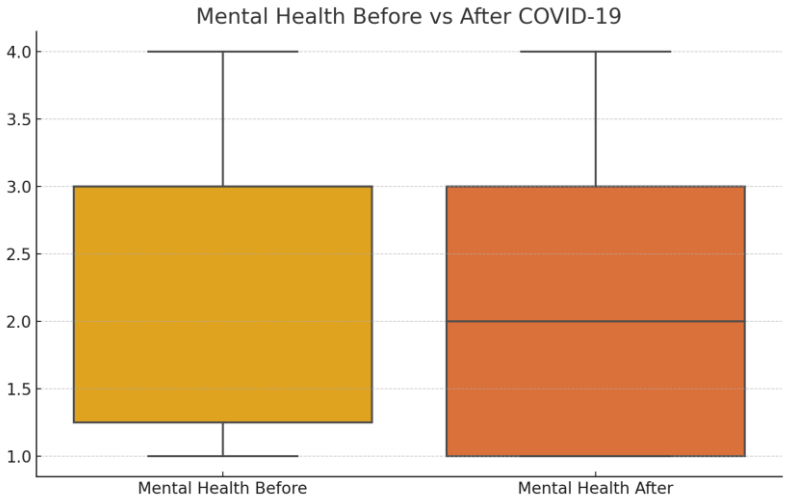


Figure 2: Mental Health Before vs After Covid -19

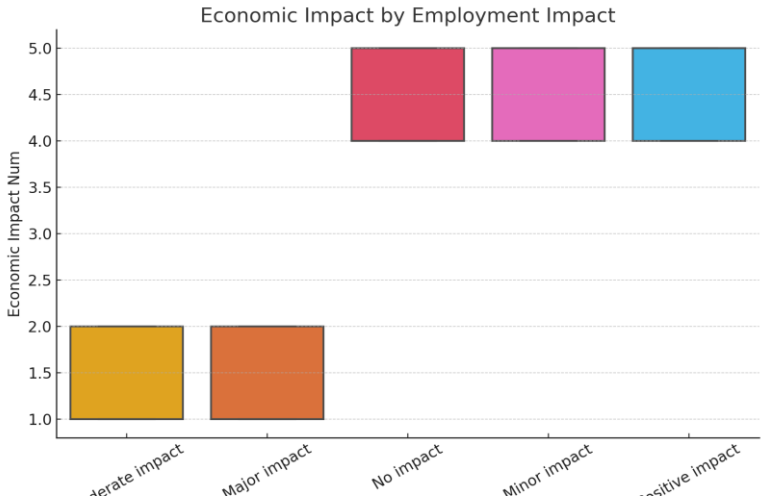


Figure 3: Economic Impact Perception by Employment Status

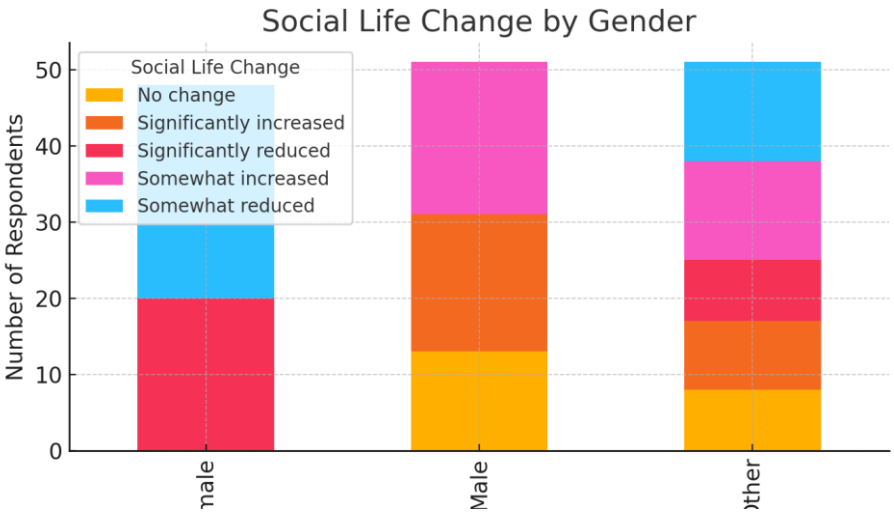


Figure 4 : Social Life Change by Gender

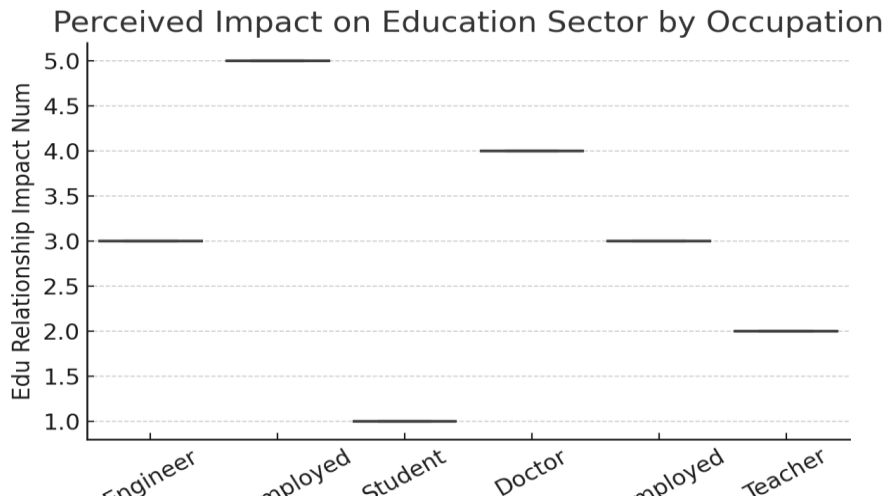


Figure 5: Education Sector Impact Rating by Occupational Group

Conclusion and Implications

The findings from this study show that COVID-19 brought real and measurable changes to how people feel physically, how they cope mentally, how they see the economy, and how they engage in education and social life. These changes were not the same for everyone—factors like job type, gender, and education level made a difference. Moving forward, there is a clear need for continued support in health and mental care, better access to flexible education systems, and ways to help communities recover socially and economically. The insights here can help guide decisions and policy-making in future situations.

References

- Alon, T., Doepke, M., Olmstead-Rumsey, J., & Tertilt, M., '*The impact of COVID-19 on gender equality'*, National Bureau of Economic Research (2020).
- Armitage, R., & Nellums, L. B., *COVID-19 and the consequences of isolating the elderly*. The Lancet Public Health, 5(5) (2020), e256.
- Bartik, A. W., et al., '*How are small businesses adjusting to COVID-19?'*, Proceedings of the National Academy of Sciences, 117(30) (2020), 17656–17666.
- Bao, W. '*COVID-19 and online teaching in higher education: A case study'*, Human Behavior and Emerging Technologies, (2020).
- Carfì, A., Bernabei, R., & Landi, F., *Persistent symptoms in patients after acute COVID-19*. JAMA, 324(6) (2020), 603–605.
- Dhawan, S., '*Online learning: A panacea in the time of COVID-19 crisis'*, Journal of Educational Technology Systems, (2020).
- Gopinath, G. 'Reworking the global economy', (2021).