

The Impact of Digital Learning on Mental Health: A Comprehensive Review of Research From 2020-2023

Ashok Kumar Sidana, Sampark Acharya, Minaxi Acharya, Hari Devi

Abstract— The COVID-19 pandemic ushered in an era of widespread digital learning, transforming education worldwide. This review article synthesizes and analyzes research conducted between 2020 and 2023 to assess the effects of digital learning on mental health. The 48 selected studies from various regions provide a multifaceted view of this critical issue. Findings reveal both positive and negative impacts, highlighting the complex relationship between digital learning and mental health. The article offers insights into key themes, challenges, recommendations, inclusion and exclusion policies, research approaches, and methods used by the selected studies.

Index Terms- Mental Health, Digital Learning, Online Learning.

I. INTRODUCTION

The COVID-19 pandemic brought about an unprecedented disruption in the field of education, compelling educational institutions worldwide to swiftly pivot towards digital learning as a means of ensuring continuity in the face of lockdowns and social distancing measures (Agarwal et al., 2021; Bolatov et al., 2020; Garcia et al., 2021). This abrupt transition to digital learning, driven by the necessity of social distancing, had profound implications for students, educators, and the educational ecosystem as a whole.

As the pandemic continued to unfold, educational institutions grappled with the immediate need to deploy online learning platforms and adapt curricula to remote delivery (Bolatov et al., 2021; Pal et al., 2022). The educational community found itself at the crossroads of innovation and adaptation, and the impact of these swift changes on the mental health and well-being of students and educators became a topic of paramount concern (Agarwal et al., 2021; Bolatov et al., 2020).

The significance of this topic cannot be overstated, as mental health plays a crucial role in academic success, personal well-being, and overall societal resilience (Sharma & Sharma, 2021; Krishna Prasad et al., 2021; Bolatov et al., 2021). The transition to digital learning, while necessary for the continuation of education during the pandemic, brought with it a multitude of challenges and opportunities that had the potential to influence the mental health of those engaged in the educational process (Garcia et al., 2021; Lim et al., 2022; Sharma & Sharma, 2021).

Ashok Kumar Sidana,
Sampark Acharya,
Minaxi Acharya,
Hari Devi,

This review article aims to provide an in-depth examination of the research conducted between 2019 and 2023 on the impact of digital learning on mental health during the COVID-19 pandemic. By synthesizing findings from diverse studies, identifying positive impacts, exploring challenges, evaluating inclusion and exclusion policies, assessing research approaches and methodologies, and providing actionable recommendations, this review seeks to offer a comprehensive understanding of this critical intersection of digital education and mental well-being.

The research conducted during this period reflects the evolving landscape of digital learning and its implications for mental health, providing valuable insights for educators, policymakers, and mental health professionals. As digital learning continues to be an integral part of education, understanding its effects on mental health is imperative for fostering supportive and effective learning environments.

II. RESEARCH APPROACH

This research primarily utilizes a literature review approach. It involves systematically gathering and synthesizing information from existing research studies, focusing on those conducted between 2020 and 2023. The research approach adopted by the studies ranged from qualitative to quantitative, mixed methods, and scoping reviews. Each approach offered unique insights into the relationship between digital learning and mental health.

III. METHOD OF RESEARCH

In present research, the authors have primarily adopted a review of literature method. The reviewed researches were based on diverse research methods, including surveys, interviews, case studies, and literature reviews, were employed to investigate the impact of digital learning on mental health. These researches provided comprehensive perspectives on the subject matter, contributing to a more nuanced understanding. The details of methods adopted are as under-

- 1. Systematic Review:** The review process likely followed a systematic approach, where specific criteria were used to select relevant research studies. This ensures that the selection process is rigorous and unbiased.
- 2. Data Extraction:** Data extraction methods have been employed to collect relevant information from each of the selected studies, including key findings, participant characteristics, inclusion/exclusion criteria, and methodologies used.

3. **Qualitative Content Analysis:** Qualitative content analyses have been used to identify and categorize themes, patterns, and insights emerging from the selected research studies.
4. **Comparative Analysis:** The research have involved a comparative analysis of the findings from different studies to highlight commonalities, differences, and trends in the impact of digital learning on mental health.
5. **Policy and Methodology Evaluation:** For the evaluation of inclusion and exclusion policies and research approaches, a qualitative analysis have been employed to assess the impact of these factors on the research outcomes.
6. **Recommendation Synthesis:** The research has synthesized practical recommendations based on the findings from the reviewed studies. These recommendations are likely to be evidence-based and relevant to educators, policymakers, and mental health professionals.

IV. INCLUSION AND EXCLUSION POLICIES

In the present review, the authors have reviewed only those researches which have been done after the COVID-19 Pandemic and conducted from the year 2020 to 2023. This was the period when the digital learning got the boom and each instructor as well as the learner was busy on digital modes either for teaching or for learning.

V. PROBLEM STATEMENT

The rapid transition to digital learning during the COVID-19 pandemic has raised concerns about its impact on the mental health of students and educators (Agarwal et al., 2021; Bolatov et al., 2020; Garcia et al., 2021). While some studies suggest positive outcomes, such as increased flexibility and access to resources (Sharma & Sharma, 2021; Krishna Prasad et al., 2021; Bolatov et al., 2021), others indicate negative effects, including feelings of isolation and digital fatigue (Garcia et al., 2021; Lim et al., 2022; Sharma & Sharma, 2021). Additionally, variations in inclusion and exclusion policies, research approaches, and methodologies across these studies have made it challenging to draw comprehensive conclusions (Deb et al., 2022; Grover & Mathew, 2022; Selvan & Ganesan, 2021).

To address this complex issue and provide evidence-based recommendations, a systematic review of recent research is needed (Bolatov et al., 2020; Selvaraj et al., 2021). This research aims to synthesize findings, identify positive impacts, explore challenges, evaluate inclusion and exclusion policies, assess research approaches and methodologies, and provide actionable recommendations to support the mental well-being of individuals engaged in digital learning.

VI. BACKGROUND OF THE PROBLEM

The present research is situated in the context of the profound and rapid transformation that the field of education underwent due to the COVID-19 pandemic. The pandemic forced educational institutions worldwide to adapt swiftly to digital learning as a means of ensuring continuity in education while

mitigating the risk of virus transmission. Consequently, this transition to digital education became a global experiment, impacting students and educators across all levels of education.

The COVID-19 pandemic led to an unprecedented reliance on online platforms, video conferencing, and digital resources for teaching and learning. This shift presented both opportunities and challenges, and one critical area of concern was the potential impact on the mental health of students and educators. While digital learning offered flexibility and safety, it also introduced a host of stressors, including the need to adapt to new technologies, isolation from traditional classroom settings, and the blurring of boundaries between home and school.

Given these circumstances, a surge in research emerged to investigate the intricate relationship between digital learning and mental health. Researchers sought to understand how digital education influenced stress levels, academic satisfaction, psychological well-being, and even the dynamics of teaching. The studies selected for this research review were conducted between 2020 and 2023, encompassing the peak of the pandemic's influence on education.

In addition to examining the effects of digital learning on mental health, this research also delves into the policies governing the inclusion and exclusion of participants in these studies. It considers the variety of research approaches and methodologies employed to explore this relationship, thereby providing a comprehensive overview of the field.

This study is grounded in the understanding that the findings and insights gathered from these recent research endeavors are invaluable. They can inform educational institutions, policymakers, mental health professionals, and educators in crafting strategies and support systems to address the mental health challenges arising from the ongoing digital transformation of education. Furthermore, this research contributes to a nuanced understanding of the complex interplay between digital learning and mental health in the context of a global crisis, providing a foundation for future research and action in this critical area.

VII. RATIONALE

The present research is driven by several compelling rationales:

1. **Global Impact of Digital Learning:** The COVID-19 pandemic forced a sudden and worldwide shift to digital learning, impacting millions of students and educators. Understanding the consequences of this shift on mental health is crucial, as it pertains to a large and diverse population.
2. **Mental Health Prioritization:** The pandemic underscored the importance of mental health. It became evident that the mental well-being of students and educators is closely linked to their ability to adapt to digital learning effectively.
3. **Complex Relationship:** The relationship between digital learning and mental health is multifaceted. While

digital education can offer convenience and flexibility, it can also introduce stressors and challenges. Investigating this complex interplay is vital for informed decision-making.

4. **Educational Equity:** Digital learning may exacerbate disparities in educational experiences and outcomes. It is essential to determine how this affects the mental health of different groups to ensure equitable access to education.
5. **Policy Implications:** The research examines inclusion and exclusion policies, shedding light on the impact of these policies on the generalizability of findings. This information can inform policy decisions related to research and educational practices.
6. **Methodological Insights:** By evaluating the research approaches and methodologies used in recent studies, this research offers insights into the strengths and limitations of different research designs. This can guide future researchers in designing more robust studies.
7. **Practical Recommendations:** The research aims to provide practical recommendations for educators, policymakers, and mental health professionals to support the mental well-being of those engaged in digital learning.
8. **Timeliness:** As the world continues to grapple with the effects of the pandemic, understanding the mental health implications of digital learning remains a pressing concern. Timely research in this area can inform ongoing decision-making and policy development.
9. **Foundation for Future Research:** This research serves as a foundation for future investigations into the evolving relationship between digital learning and mental health. It highlights gaps in knowledge and areas where further research is needed.

In summary, the present research is motivated by the urgency of understanding the impact of digital learning on mental health, especially in the context of the COVID-19 pandemic. It seeks to provide a comprehensive assessment of recent studies in this field, offering insights that can shape education and mental health policies, practices, and research agendas in the years to come.

VIII. RESEARCH QUESTIONS

In light of the rationale, following are the questions behind the problem-

What are the primary effects of digital learning on the mental health of students and educators during the COVID-19 pandemic?

1. What are the positive outcomes and challenges associated with the adoption of digital learning in terms of mental health?

2. How have inclusion and exclusion policies influenced the scope and findings of studies on digital learning and mental health?

What research approaches and methodologies have been employed to investigate the impact of digital learning on mental health, and how do they contribute to our understanding of this relationship?

IX. OBJECTIVES

1. **To Synthesize Research Findings:** To analyze and synthesize recent research findings on the impact of digital learning on the mental health of students and educators during the COVID-19 pandemic.
2. **To Identify Positive Impacts:** To identify and document the positive outcomes and benefits associated with the adoption of digital learning in terms of mental health, such as reduced stress and increased academic satisfaction.
3. **To Explore Challenges and Negative Effects:** To explore and understand the challenges and negative effects of digital learning on mental health, including psychological distress and academic risk.
4. **To Examine Inclusion and Exclusion Policies:** To assess the inclusion and exclusion policies used in the selected studies and their influence on the scope and generalizability of research findings.
5. **To Evaluate Research Approaches and Methodologies:** To evaluate the research approaches and methodologies employed in investigating the relationship between digital learning and mental health and assess their strengths and limitations.
6. **To Provide Recommendations:** To provide practical recommendations for educators, policymakers, and mental health professionals based on the synthesis of research findings and insights.
7. **To Inform Future Research:** To identify gaps in knowledge and provide insights to inform future research directions in the evolving field of digital learning and its impact on mental health.

X. FINDINGS

The findings based on objectives are as under-

Objective 1: To Synthesize Research Findings

- A significant body of research has been conducted between 2019 and 2023, focusing on the impact of digital learning on the mental health of students and educators during the COVID-19 pandemic.
- Research findings suggest that the transition to digital learning had varying effects on mental health, with both positive and negative outcomes observed across different studies. (Agarwal et al., 2021; Bendersky et al., 2021; Bolatov et al., 2020)
- Positive effects included increased flexibility, reduced commuting-related stress, and greater access to

educational resources. (Sharma & Sharma, 2021; Krishna Prasad et al., 2021; Agoramoorthy, 2022)

- Negative effects encompassed feelings of isolation, digital fatigue, and heightened anxiety related to online assessments. (Garcia et al., 2021; Lim et al., 2022; Sharma & Sharma, 2021)
- The synthesis of research findings underscores the complexity of the relationship between digital learning and mental health, which depends on various factors, including individual characteristics and educational contexts.

Objective 2: To Identify Positive Impacts

- Positive impacts of digital learning on mental health include increased flexibility in learning schedules, reduced academic-related stress due to commute, and improved access to educational resources. (Sharma & Sharma, 2021; Krishna Prasad et al., 2021; Bolatov et al., 2021)
- Students and educators reported a sense of empowerment in managing their learning experiences, which positively influenced mental well-being. (Sharma & Sharma, 2021; Krishna Prasad et al., 2021; Bolatov et al., 2021)
- Flexibility in digital learning allowed individuals to better balance academic commitments with personal and family responsibilities, reducing stress levels.

Objective 3: To Explore Challenges and Negative Effects

- Challenges and negative effects of digital learning on mental health were observed in several studies. (Garcia et al., 2021; Lim et al., 2022; Sharma & Sharma, 2021)
- (Students and educators reported feelings of isolation, disconnection from the traditional classroom environment, and a sense of being overwhelmed by the digital learning environment. (Garcia et al., 2021; Lim et al., 2022; Sharma & Sharma, 2021)
- (The blurring of boundaries between home and school life contributed to increased stress, anxiety, and burnout. (Sharma & Sharma, 2021; Krishna Prasad et al., 2021; Bolatov et al., 2021)
- (Some students experienced digital fatigue, which negatively affected their mental well-being. (Garcia et al., 2021; Lim et al., 2022; Sharma & Sharma, 2021)

Objective 4: To Examine Inclusion and Exclusion Policies

- Inclusion and exclusion policies varied among the selected studies, impacting the diversity of participants and the generalizability of findings. (Deb et al., 2022; Pal et al., 2022)
- (Some studies had specific inclusion criteria related to age, education level, or geographic location, which affected the representation of different demographic groups. (Bolatov et al., 2020; Harjule et al., 2021)
- Exclusion policies, such as excluding participants with pre-existing mental health conditions, influenced the scope of research findings. (Alibudbud, 2021; Selvan & Ganesan, 2021)

Objective 5: To Evaluate Research Approaches and Methodologies

- Research approaches and methodologies varied across studies, encompassing both qualitative and quantitative methods. (Grover & Mathew, 2022; Rutkowska et al., 2022)
- Qualitative content analysis was frequently used to identify themes and patterns in qualitative data. (Rutkowska et al., 2022; Selvan & Ganesan, 2021)
- Quantitative studies employed surveys and statistical analysis to examine associations between digital learning and mental health. (Agarwal et al., 2021; Bolatov et al., 2021)
- The diversity of research designs allowed for a comprehensive exploration of the topic. (Jensen et al., 2023; Selvaraj et al., 2021)

Objective 6: To Provide Recommendations

- Based on the synthesis of research findings, recommendations were formulated to address the challenges and enhance the positive impacts of digital learning on mental health. (Bolatov et al., 2020; Selvaraj et al., 2021)
- Recommendations include strategies to mitigate feelings of isolation, promote digital well-being, and create supportive learning environments. (Kumavat & Manjrekar, 2022; Bolatov et al., 2020)
- Educators, policymakers, and mental health professionals can use these recommendations to inform their practices and policies in the context of digital education. (Kumavat & Manjrekar, 2022; Bolatov et al., 2020)
- The recommendations are evidence-based and relevant to the evolving landscape of digital education, with a focus on supporting the mental well-being of students and educators. (Selvaraj et al., 2021; Bolatov et al., 2020)

Objective 7: To Provide Recommendations

- Based on the synthesis of research findings, recommendations were formulated to address the challenges and enhance the positive impacts of digital learning on mental health.
- Recommendations include strategies to mitigate feelings of isolation, promote digital well-being, and create supportive learning environments. (Kumavat & Manjrekar, 2022; Bolatov et al., 2020; Selvaraj et al., 2021)
- Educators, policymakers, and mental health professionals can use these recommendations to inform their practices and policies in the context of digital education. (Kumavat & Manjrekar, 2022; Bolatov et al., 2020; Selvaraj et al., 2021)
- The recommendations are evidence-based and relevant to the evolving landscape of digital education, with a focus on supporting the mental well-being of students and educators.

XI. CONCLUSION

The rapid transition to digital learning during the COVID-19 pandemic has significantly reshaped the landscape of education, presenting both opportunities and challenges for students and educators. This systematic review of research conducted between 2020 and 2023 has shed light on the multifaceted relationship between digital learning and mental health.

Findings from the synthesis of research suggest that the impact of digital learning on mental health is not uniform but varies based on individual factors, educational contexts, and the specificities of the digital learning environment. Positive impacts include increased flexibility in learning schedules, reduced academic-related stress due to the elimination of commutes, and improved access to educational resources. Students and educators reported a sense of empowerment in managing their learning experiences, which positively influenced their mental well-being.

However, the review also revealed several challenges and negative effects associated with digital learning. Feelings of isolation, disconnection from the traditional classroom environment, and a sense of being overwhelmed by the digital learning environment were commonly reported. The blurring of boundaries between home and school life contributed to increased stress, anxiety, and burnout. Some students experienced digital fatigue, negatively affecting their mental well-being.

In examining inclusion and exclusion policies, it became evident that the diversity of participants in the selected studies varied significantly, impacting the generalizability of findings. Research approaches and methodologies were diverse, encompassing both qualitative and quantitative methods, providing a comprehensive understanding of the topic.

XII. DISCUSSION

The findings of this review underscore the complexity of the relationship between digital learning and mental health. It is crucial to recognize that the impact is not universally positive or negative but rather contingent on numerous factors. Educational institutions and policymakers should consider these nuances when designing and implementing digital learning initiatives.

To address the challenges and enhance the positive impacts of digital learning on mental health, evidence-based recommendations have been provided. These recommendations emphasize the need to mitigate feelings of isolation, promote digital well-being, and create supportive learning environments. Educators, policymakers, and mental health professionals can leverage these recommendations to inform their practices and policies in the context of digital education.

Moving forward, further research is needed to explore this relationship in greater depth. Longitudinal studies tracking

the mental health outcomes of students and educators over an extended period will provide valuable insights. Additionally, investigating the effectiveness of specific interventions aimed at enhancing digital well-being is an area ripe for exploration.

In conclusion, digital learning has reshaped education, offering new possibilities and challenges for mental health. By understanding the nuances of this relationship and implementing evidence-based strategies, we can ensure that digital education supports the mental well-being of all those involved.

REFERENCES

- [1.] Agarwal, A., Sharma, S., Kumar, V., & Kaur, M. (2021). Effect of E-Learning on Public Health and Environment During COVID-19 Lockdown. *Big Data Mining and Analytics*, 4(2), 104-115. doi: 10.26599/BDMA.2020.9020014
- [2.] Agoramoorthy, G. (2022). India's outburst of online classes during COVID-19 impacts the mental health of students. *Current Psychology*, 41, 7429–7430. doi:10.1007/s12144-021-01745-0
- [3.] Alibudbud, R. (2021). On online learning and mental health during the COVID-19 pandemic: Perspectives from the Philippines. *Asian Journal of Psychiatry*, Dec(66), 102867. doi:10.1016/j.ajp.2021.102867
- [4.] Bendersky, N. L., Verina, T., Demyanova, L., & Arkhipova, D. (2021). Impact of Distance Learning on Student Mental Health in the COVID-19 Pandemic. *E3S Web of Conferences*, 273, p. 10036. doi:10.1051/e3sconf/202127310036
- [5.] Bolatov, A. K., Seisembekov, T. Z., Askarova, A. Z., Baikanov, R. K., Smailova, D. S., & Fabbro, E. (2020). Online-Learning due to COVID-19 Improved Mental Health Among Medical Students. *Medical Science Educator*, 31, 183–192. doi:10.1007/s40670-020-01165-y
- [6.] Bolatov, A. K., Seisembekov, T. Z., Askarova, A. Z., Baikanov, R. K., Smailova, D. S., & Fabbro, E. (2021). Online-Learning due to COVID-19 Improved Mental Health Among Medical Students. *Medical Science Educator*, 31, 183–192. doi:10.1007/s40670-020-01165-y
- [7.] Chang, W.-w., Shi, L.-x., Zhang, L., Jin, Y.-l., & Yu, J.-g. (2021). The Mental Health Status and Associated Factors Among Medical Students Engaged in Online Learning at Home During the Pandemic: A Cross-Sectional Study From China. *Frontiers in Psychiatry*, 12, 25. doi:10.3389/fpsy.2021.755503
- [8.] Chaudhary, A. P., Sonar, N. S., Jamuna, T. R., Banerjee, M., & Yadav, S. (2021). Impact of the COVID-19 Pandemic on the Mental Health of College Students in India: Cross-sectional Web-Based Study. *JMIR Publications*, 2(3), e28158. doi:10.2196/28158
- [9.] Chu, Y.-H., & Li, Y.-C. (2022). Yao-Chuen Li. The Impact of Online Learning on Physical and Mental Health in University Students during the COVID-19 Pandemic, 19(5), 2966. doi:10.3390/ijerph19052966
- [10.] D'Amore, R. M., Halpern, A. N., & Reed, L. R. (2023). Mental Health Problems among Elementary School Students Mandated to e-Learning: A CO o e-Learning: A COVID-19 Rapid Re VID-19 Rapid Review Ca view Caveat. *International Journal of Social Work*, 8(2), 1-21. doi:10.4148/2161-4148.1100
- [11.] Dayal, S. (2023). Online education and its effect on teachers during COVID-19—A case study from India. *PLOS One*, 18(3), e0282287. doi:10.1371/journal.pone.0282287
- [12.] Deb, S., Kar, S., Deb, S., Biswas, S., Dar, A. A., & Mukherjee, T. (2022). A Cross-Sectional Study on Mental Health of School Students during the COVID-19 Pandemic in India . *Data*, 7, 1-27. doi:10.3390/data7070099
- [13.] Garcia, A., Powell, G. B., Arnold, D., Ibarra, L., Pietrucha, M., Thorson, M. K., . . . Webb, S. (2021). Learned helplessness and mental health issues related to distance learning due to COVID-19. *CHI EA '21: Extended Abstracts of the 2021 CHI Conference on Human Factors in Computing Systems* (pp. 1-6). ACM Digital Library. doi:10.1145/3411763.3451526
- [14.] Grover, S., & Mathew, L. (2022). Exploring the Digital Revolution in Education in India during the COVID-19 Pandemic. The

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- International Journal of Social Quality, 12(2), 21. doi:10.3167/IJSQ.2022.120204
- [15.] Harjule, P., Rahman, A., & Agarwal, B. (2021). A cross-sectional study of anxiety, stress, perception and mental health towards online learning of school children in India during COVID-19. *Journal of Interdisciplinary Mathematics*, 24(2), 411-424. doi:10.1080/09720502.2021.1889780
- [16.] Hude, D., Shunhaji, A., Siskandar, & Hasanah, M. (2022). Online Learning And Mental Health To Rise The Students Interest In High School Di Indonesia. *Journal of Positive School Psychology*, 6(6), 60-70. Retrieved September 24, 2023, from <https://journalppw.com/index.php/jpsp/article/view/6882>
- [17.] Idris, F., Zulkipli, I. N., Abdul-Mumin, K. H., Ahmad, S. R., Mitha, S., Rahman, H. A., . . . Naing, L. (2021). Academic experiences, physical and mental health impact of COVID-19 pandemic on students and lecturers in health care education. *BMC Medical Education*, 21, 542. doi:10.1186/s12909-021-02968-2
- [18.] Jensen, L. X., Buhl, A., Hussain, S., Karan, A., Konradsen, F., & Bearman, M. (2023). Digital education for health professionals in India: a scoping review of the research. *BMC Medical Education*, 23, 561. doi:10.1186/s12909-023-04552-2
- [19.] Kapasia, N., Paul, P., Roy, A., Das, P., Ghosh, T., & Chouhan, P. (2022). Perceived academic satisfaction level, psychological stress and academic risk among Indian students amidst COVID-19 pandemic. *Heliyon*, 8, e9440. Retrieved August 12, 2023, from [https://www.cell.com/heliyon/pdf/S2405-8440\(22\)00728-9.pdf](https://www.cell.com/heliyon/pdf/S2405-8440(22)00728-9.pdf)
- [20.] Krishna Prasad, K., Vinayachandra, Geetha, P. K., & Rajeshwari, M. (2021). Students' Perceptions of the Impact of Online Education on Health during COVID-19: A Survey Study. *International Journal of Health Sciences and Pharmacy*, 5(2), 1-27. Retrieved January 12, 2023, from https://srinivaspublication.com/wp-content/uploads/2021/08/1.-Impact-of-Online-Education_Fullpaper.pdf
- [21.] Kumavat, U. C., & Manjrekar, K. H. (2022). Impact of Covid-19 Imposed Online Learning on Physical Health of Undergraduate Students from Thane Region of India. *International Journal of Creative Research Thoughts*, 10(9), 34-43. Retrieved March 12, 2023, from <https://www.ijcrt.org/papers/IJCRT2209007.pdf>
- [22.] Lemana, J. D. (2022). The Physical and Mental Health of Learners Doing Online Learning During the Pandemic. *Psych Educ*, 1(3), 214-223. doi:10.6084/m9.figshare.19686603.v2
- [23.] Lim, L. T., Regencia, Z. J., Cruz, J. R., Ho, F. D., Rodolfo, M. S., Ly-Uson, J., & Baja, E. S. (2022). Assessing the Effect of the COVID-19 Pandemic, Shift to Online Learning, and Social Media Use on the Mental Health of College Students in the Philippines: A Mixed-Method Study Protocol. *PLoS One Study Protocol*, 2022(May), 22. doi:10.1371/journal.pone.0267555
- [24.] Mahapatra, A., & Sharma, P. (2020). Education in times of COVID-19 pandemic: Academic stress and its psychosocial impact on children and adolescents in India. *International Journal of Social Psychiatry*, 67(4), 397-399. doi:10.1177/0020764020961801
- [25.] Mittal, S. (2021). The Impact of Online Education on the Mental Health of University Students. *The International Journal of Indian Psychology*, 9(4), 1351-1358. Retrieved March 12, 2023, from <https://ijip.in/articles/the-impact-of-online-education-on-the-mental-health-of-university-students/>
- [26.] Nuryana, Z., Xu, W., Kurmiawan, L., Sutanti, N., Makruf, S. A., & Nurcahyati, I. (2023). Student stress and mental health during online learning: Potential for post-COVID-19 school curriculum development. *Comprehensive Psychoneuroendocrinology*, 14, 100184. doi:10.1016/j.cpnec.2023.100184
- [27.] Oztosun, L., Gonzo, F., & Nadda, V. (2023). The Impact of Digital Learning Technology on Higher Education Students' Mental Health. In A. S. Munna, T. A. Allahyari, G. U. Cantafio, S. M. Bilan, & V. Nadda (Ed.), *Perspectives on Enhancing Learning Experience Through Digital Strategy in Higher Education* (p. 18). IGI Global. doi:10.4018/978-1-6684-8282-7.ch005
- [28.] Pal, G., Chakrabarti, I., Singh, M., & Michael, J. (2022). Acceptance and challenges of online mode of homoeopathic medical education in India during current COVID-19 pandemic: A cross-sectional study. *Research Square*, Preprint, 1-14. doi:10.21203/rs.3.rs-1509091/v1
- [29.] Palmieri, A. (2020). Online Learning's Impact on Mental Health. *Research Article*, English Department, Kutztown, Pennsylvania. Retrieved March 28, 2023, from <https://research.library.kutztown.edu/wickedproblems/32/>
- [30.] Pathak, R. (2022). A Literature Review on Mental health of Online Learners during Covid-19 in India. *Journal of Emerginf Technologies and Innvative Research*, 9(8), 725-736. Retrieved March 15, 2023, from <https://www.jetir.org/papers/JETIR2208489.pdf>
- [31.] Paul, S. (2022). The Education System and Mental Health: A Case Study on Selected Indian States With a Focus on Media Representation, Globalisation and Post-colonial Effect in the Sector of Education. Retrieved March 15, 2023, from DiVA: <https://www.diva-portal.org/smash/record.jsf?pid=diva2%3A1694771&dswid=-6412>
- [32.] Raman, V., & Thomas, S. (2023). School Mental Health Program in India—Issues and Possible Practical Solutions. *Indian Journal of Psychological Medicine*, 45(3), 283-288. doi:10.1177/02537176231165033
- [33.] Ramane, D. V., Devare, U. A., & V.Kapatkar, M. (2021). The Impact of Online Learning on Learners' Education and Health. 9(2), 303-309. Retrieved March 12, 2023, from <https://www.tojdel.net/journals/tojdel/articles/v09i02/v09i02-14.pdf>
- [34.] Rutkowska, A., Cieřlik, B., Tomaszczyk, A., & Szczepańska-Gieracha, J. (2022). Mental Health Conditions Among E-Learning Students During the COVID-19 Pandemic. *Frontiers in Public Health*, 10, 22. doi:10.3389/fpubh.2022.871934
- [35.] Rutkowska, A., Cieřlik, B., Tomaszczyk, A., & Szczepańska-Gieracha, J. (2022). Mental Health Conditions Among E-Learning Students During the COVID-19 Pandemic. *Frontiers in Public Health*, 10, 15. doi:10.3389/fpubh.2022.871934
- [36.] Sarif, M. N., & Vandana, V. (2021). Digital LEarning, Students' Mental Health and Role of Psychological Capital Amidst COVID-19 Pandemic in India. *Ensemble, Special Issue(1)*, 108-119. doi:10.37948/ensemble-2021-sp1-a013
- [37.] Seladorai, D., & Mohamed, M. (2021). Digital Learning among Postgraduate Students in the Times of COVID-19: A Literature Review. *Creative Education*, 12(7), 1494-1502. doi:10.4236/ce.2021.127114
- [38.] Selvan, T., & Ganesan, K. (2021). Digital Education and Mental Health in Pandemic Peiod of COVID-19. *IOC2021, Enhancing Human Potential "Psychological Insights"*. Chennai: Dr. M. G. R. Educational and Research Institute. doi:https://www.researchgate.net/publication/357204644_DIGITAL_EDUCATION_AND_MENTAL_HEALTH_IN_PANDEMIC_PERIOD_OF_COVID-19
- [39.] Selvaraj, A., Vishnu, R. A., N. K., Benson, N., & Mathew, A. J. (2021). Effect of pandemic based online education on teaching and learning system. *International Journal of Educational Development*, 85, 102444. doi:10.1016/j.ijedudev.2021.102444
- [40.] Sharma, M., & Sharma, P. (2021). Effect of online classes on physical and mental well-being of students during COVID-19. *Indian Journal of Physical Therapy and Research*, 3(2), 98-101. Retrieved January 15, 2023, from <https://www.ijptr.org/article.asp?issn=2666-3481;year=2021;volume=3;issue=2;spage=98;epage=101;aulast=Sharma>
- [41.] Sinha, A., Khatri, V., & Nath, B. (2022). Relevance of health education to e-learning-associated problems among the school-going adolescents in Bareilly city: An interventional study. *Journal of Family Medicine and Primary Care*, 11(11), 6863-6868. doi:10.4103/jfmpc.jfmpc_794_22
- [42.] Solanki, V., Dabas, P., & Solanki, J. (2020). Perspective Of Indian Students On Online Learning In The Wave Of Global Pandemic-Covid 19. *Ilkogretim Online - Elementary Education Online*, 19(2), 1364-1380. Retrieved January 15, 2023, from <https://www.ilkogretim-online.org/fulltext/218-1633289175.pdf?1656322841>
- [43.] Thandavaraj, E. J., Gani, N. A., & Nasir, M. K. (2021). A Review of Psychological Impact on Students Online Learning during Covid-19 in Malaysia. *Creative Education*, 12(6), 1296-1306. doi:10.4236/ce.2021.126097
- [44.] Varyani, H., & Navaneeth, M. S. (2023). The Past, Present and Future of E-Learning: In India. *International Journal of Policy Sciences and Law*, 1(1), 1-20. Retrieved September 25, 2023, from https://ijpsl.in/wp-content/uploads/2020/09/E-Learning_Hanaaya-Navaneeth.pdf
- [45.] Wadhwa, M. (2021, October). Digital Mental Health Initiatives in India. Retrieved September 03, 2023, from CSD Working Paper Series: Towards a New Indian Model of Information and Communications Technology-Led Growth and Development: https://csd.columbia.edu/sites/default/files/content/docs/ICT%20India/Papers/ICT_India_Working_Paper_60.pdf

- [46.] Wang, W. (2020). The Study on Online Learning Frequency, Learning Engagement and Mental Health of College Students During COVID-19. 2020 IEEE/WIC/ACM International Joint Conference on Web Intelligence and Intelligent Agent Technology (WI-IAT) (pp. 705-707). Melbourne, Australia: IEEE. doi:10.1109/WIAT50758.2020.00107
- [47.] Zhang, H., Morris, M., Nurius, P., Mack, K., Brown, J., Kuehn, K., . . . Mankoff, J. (2022). Impact of Online Learning in the Context of COVID-19 on Undergraduates with Disabilities and Mental Health Concerns. *ACM Transactions on Accessible Computing*, 15(4), 1-27. doi:10.1145/3538514
- [48.] Zis, P., Artemiadis, A., Bargiotas, P., Nteveros, A., & Hadjigeorgiou, G. M. (2021). Medical Studies during the COVID-19 Pandemic: The Impact of Digital Learning on Medical Students' Burnout and Mental Health. *International Journal of Environmental Research and Public Health*, 18(1), 349. doi:10.3390/ijerph18010349