ISSN 2515-8260 Volume 09, Issue 8, 2022

IMPACT OF COVID-19 ON INDIAN RURAL HIGHER EDUCATIONAL INSTITUTIONS

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ABSTRACT

March 2020, as the Covid-19 entered the doors of India, all the doors of the school, colleges and universities were forced to shut their doors. That situation forced a universal shift to online teaching which affected the normal aspects of teachers, students, and parents also. The usage of online resources and self-personal improvement noticed a positive impact on Covid-19. India is an evolving country, and thus the adaptation of the online education system is complicated for the management, student, and faculty of fifty percent of higher educational institutions with existing facilities. The additional demonstrative baggage of insecurity besides fears around job safety, physical and psychological health and income capital, and many more are bound. It leads to a great impact and made the sudden, and for many a rather unwelcome, transition to online teaching. Scope of this paper to analyze the positive and negative impact of Covid-19 on the higher education sector and the life of Higher Educational Institute students and faculty. The survey is carried out in one of the rural universities located in the southern part of India to analyze the impact of Covid on Indian rural Higher Educational institutions.

KEYWORDS: COVID 19, Higher Educational Institute, Online Teaching, Indian Rural Education

1.INTRODUCTION

Covid-19 was affirmed as a pandemic by World Health Organization **(**WHO) on March 11, 2020. More than 4.5 million people around the world have been affected by Covid-19 **(**WHO). The best practices to control coronavirus are social distance, washing hands frequently, and wearing mask (WHO 2020). One of the policies taken all around the world to prevent corona is the complete closing of educational institutions (Alsafi et al 2020; Harvard University 2020; Pather et al 2020).To prevent the nation from the coronavirus pandemic, India announced 1st phase of lockdown on March 25, 2020. Totally 5 phases of lockdowns were introduced, and the educational institutions are still in the lockdown stage only. Covid-19 has influenced the higher educational institutions around world; universities all over the world have introduced online teaching methodologies.

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The global epidemic had a profound effect on various fields of the economy. This may be somewhat easier for professionals to accept homework as new and to continue business as usual, times have been challenging for a global education system that focuses more on classroom learning. The government has recommended the move to online learning as a stop-gap arrangement to avoid any disruption to the academic calendars. Technology and smart classes are not only renovating education into high-paying private institutions, but are increasingly entering public schools. As a result, e-learning is the best method to transform technical education. It shows a positive change and rural schools and colleges are also becoming accustomed to technology every day. It is encouraging to see that even Tier III and rural areas are stepping up to transform traditional education into a digital-enhanced process. Although the benefits of online learning are many, there are still many roadblocks to making education fully digital online.

When it comes to Online Education or E-Learning, rural people are not fully equipped with things like fast internet, uninterrupted power supply, and electronic devices. There has been progressing in terms of infrastructure, but many rural areas in India are still facing the challenge of making education fully digital or online. To switch over from normal mode to the Covid pandemic situation most of the institutions postponed the examinations and later they were conducted in online mode (Crawford et al 2020). The pandemic disease significantly impacted all educational institutions including Higher Educational Institutions (HEI). Faculty Academic Review for Excellence (FARE), 2020 survey stated that over 45% of faculty in Indian HEI have been struggling hard to switch over to online teaching mode, and to expand their skills and digital competencies (The Hindu,2020). It is also revealed that 30% of faculty in HEI are lack of virtual learning devices, skills and how technically use them, 70% of faculty emerged to manage the competitive environment. The HEI management also suffered to maintain active participation in academic activities and financial sustainability (Aljawarneh 2019). Covid-19 created larger negative impact on the students from poor background (Aucejo et al. 2020).

The academic activities of the students are limited by poor digital knowledge, high cost of internet and less family income by Covid. It also creates mental depression in worldwide student community (Lee 2020). Lack of outdoor activity and continuous online learning, disturbed sleeping pattern also creates panic disorder (Cao et al. 2020). The malpractice and unethical activities in learning is also increased in lockdown time (Ye et al. 2020). To maintain concentration throughout teaching for a student is also challenging in online mode (Sutton, 2020). There is a possibility of cyber security threats like virus attack, hacking and data loss is possible in computer and other digital device (Nam, 2019). Engaging of class and interesting way of learning are crucial for online mode of education. Still effective effective student engagement tools and teacher training is not ensured in rural areas of online teaching scenario (Kandri, 2020).

The key objective of this study is to examine the critical issues and challenges faced by HEI management, student and faculty during Covid-19. It explores the psychological and health issues of both student and faculty since of the sudden shift over to online teaching and learning. Issues of digital pedagogy is also considered and highlighted in this article. The significant of the study is analyzed by real time case report. The survey is carried out in one of the rural university located at southern Tamilnadu, India. Totally 150 faculty and 400 students from 10 different departments Computer Science

and Engineering, Information Technology, Mechanical, Civil, Automobile, Fire and Safety, Marine, Aircraft Maintenance, Electrical and Electronics and Aerospace Engineering.

2.INFLUENCE OF COVID-19 ON MANAGEMENT

The tertiary universities in the developed countries easily adopted the virtual class room teaching. But in the developing countries, management scrambled to convert the face-face traditional classes into online digital pedagogy. During lockdown administrators of HEI struggled a lot to cope up with rapidly changing environment. The communications were done through email in the initial stage among faculty and student for implementing new technology.

2.1 Increase in Events Organized by the Institution

Covid-19 created an opportunity for the university administration to develop blended learning. The number of webinars, FDP, technical talks, and online quizzes conducted by the institutions increased in Covid period because of less time for planning and remote resource person. The traveling time of resource persons and attendees is nil on the online platform. The events organized in the selected institution by various departments in online mode are shown in Figure 1.

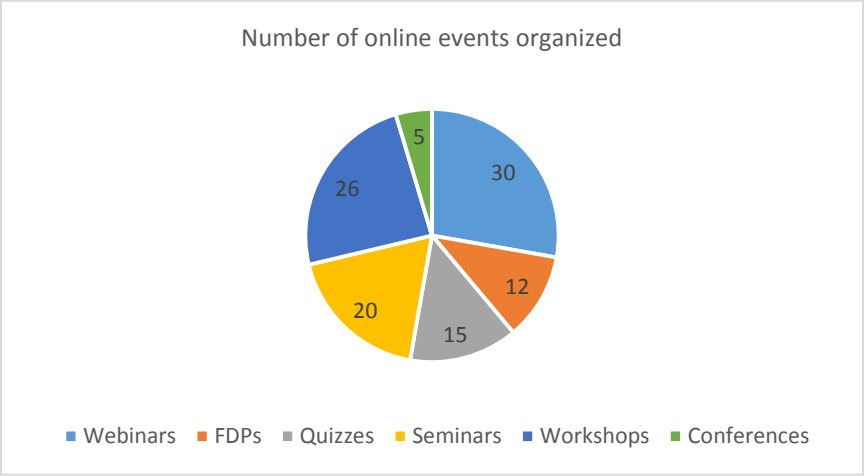

Figure 1. Events organized by the institution during Covid-19

2.2 Increase in overhead charges

The overhead of college software development team is increased to maintain the digital platform for delivering lectures, and arranging webinars and online assessments. Purchase of many facilities and licenses for online platforms increases the financial overhead of institutions. Most of the teaching-learning tools and platforms purchased for continuous teaching-learning, the training for these tools also increased the overhead of HEIs.

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2.3 Introduction of new assessment methods

Generally, the question paper and answer script concept was used for the assessment of students. Some documents like assignments and case studies were used for additional assessment. But in digital platform more quizzes, online documentation, and online surveys are introduced for assessment methods. In addition assessment software is purchased by HEI for conducting university examinations. In the university selected for survey the MCQ format is adopted for conducting final examination. The number of measures used for student assessment increases and thus the self-evaluation of a student by individual faculty increases. The number of assessments conducted by the selected university in the 2019-2020 even semester is shown in Figure 2.

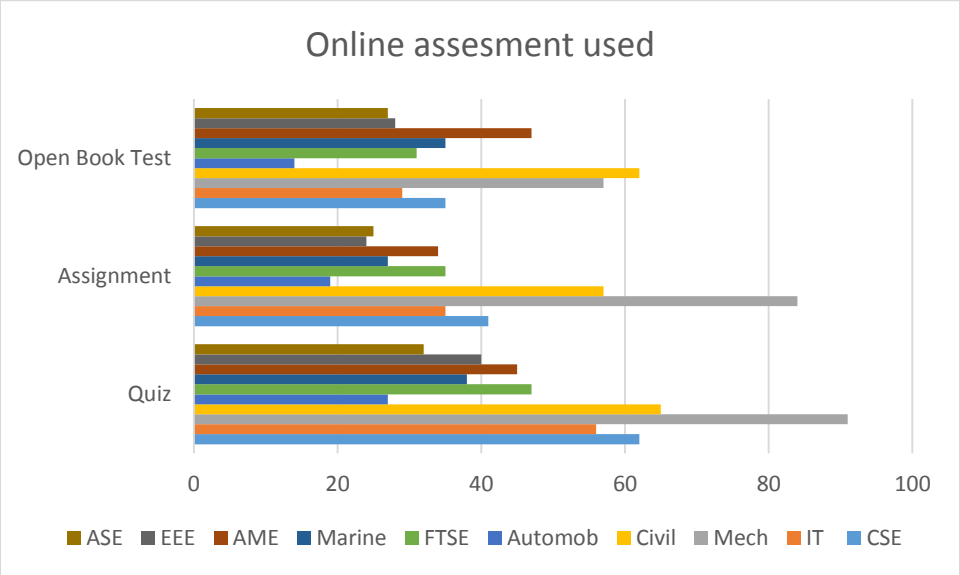

Figure 2. Number of assessments in selected departments

2.4 Issues of social justice

The internet is a significant tool responsible for online education in higher educational institutions and it helps in bringing out better results in terms of excellence in education (Kirkwood 2001; Rye 2008). The change from face-to-face to distance to online education requires a lot of changes in educational pedagogies without violating social justice. The sudden shift has formed the digital divide between rich and poor. Access to technical gadgets, technical infrastructure, and payment of a fee for online certification are a few critical reasons for access to higher education and thus, allowing the divide.

2.5. Financial Issues faced by the management of HEI

HEI is estimated to fall large income losses due to less student enrollment. The student accommodation and conference and workshop-related expenses are also reduced in HEI because the online FDPs and webinars are conducted without a registration fee. Some weel equipped institutions

also find it hard to estimate enrollment for the 2020–21 academic year. Rural institutions that were already financially stressed prior to the pandemic, are forced to numeral financial issues. In rural villages most of the parents lost their job because of Covid lockdown, hence it is a serious issue for them to pay the tuition fee. This situation causes the HEI to fall in flow of money and thus the salary of faculty is frustrated in Covid-19.

3. IMPACT OF COVID-19 ON FACULTY

3.1 Use of available online resources

The faculty of HEI are forced to adopt the technical and technological change for survival. The available resource in the internet is widely used in this period. Most of the faculty refer textbook and web content before covid. The use of youtube videos, nptel lecture series videos, and online resources like model question papers, multiple-choice questions and lecture notes in all subjects also increased during the lock down. The percentage of teachers used online resources for learning are shown in Table 1. The faculty also refer to other university websites for teaching plan, class schedules and model question papers. The research articles play a significant role during the lockdown by faculty for teaching and learning.

Table 1: Use of online learning materials used by faculty

Resource Used	In percentage	Resource Used	In percentage
E-books	60	Research Articles	55
You tube Videos	65	Websites	85
NPTEL Lectures	65	MCQs	90
Lecture Notes	75	Blobs	54

3.2. Use of available online tools

Online facilities like moodle, Google classroom, and online quizzes which were used minimally in HEI became familiar in the covid period. Especially online tools like Zoom, Google meet, Google sheet, Google forms and PPTs are proved to be more useful tools in online teaching. The course materials are developed and delivered with online teaching tools. The assessment of students is also carried out by online tools with less money. Some tools play a vital role in online survey and feedback. In our survey the Google platform outperforms all online tools and as shown in Figure 3.

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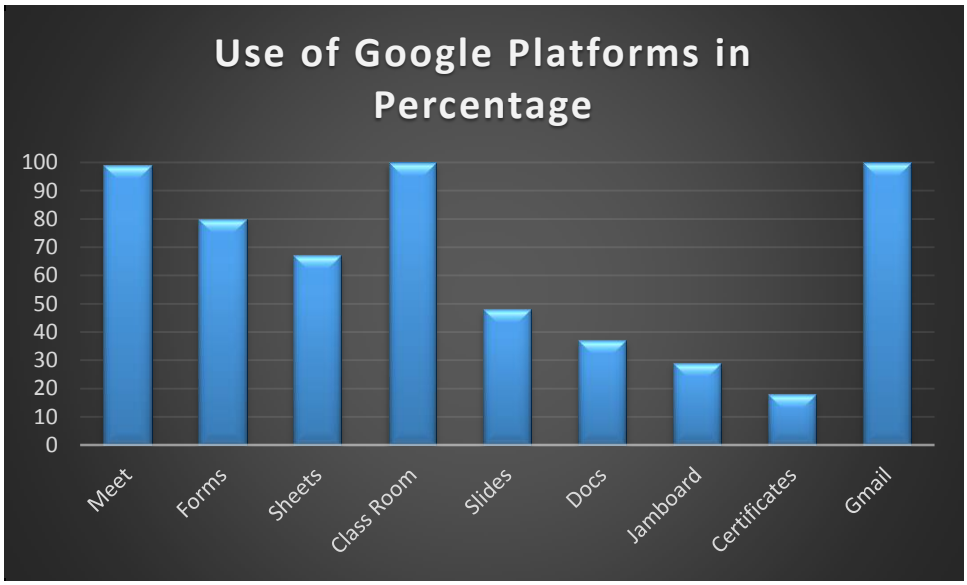

Figure 3. Use of Google platform in online teaching

3.3. Online Teaching and Course Delivery

Covid-19 enhanced an online pedagogy with Blooms Taxonomy based learning. Virtual class rooms were created by the faculty in which students and faculty can share videos and pictures. Based on the Blooms taxonomy more quizzes and learning technologies are adopted during the pandemic period. The faculty interact with the person in one-to-one communication and group communication. The delivery of course content by the faculty according to the survey is shown in Figure 4.

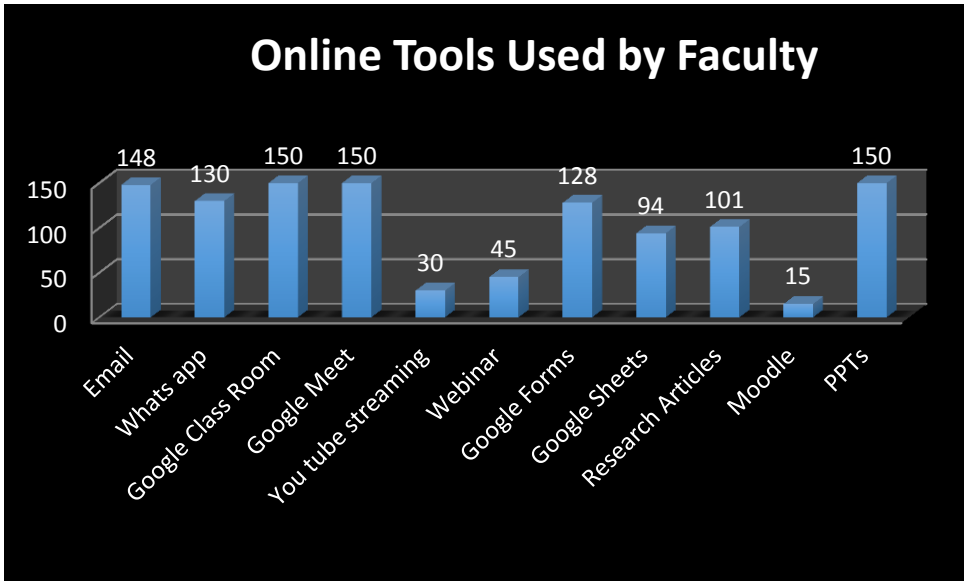

Figure 4. Course Delivery Method

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The theory classes can be handled effectively in online mode whereas the handling of practical section is highly challenging. Few virtual labs are implemented by IIT s and private organizations. But only the simulation is possible in such cases and real time implementation is in a honeycomb stage. Few online laboratory is an easy solution for software related departments but it takes time to implement virtual lab for core departments like Mechanical Engineering and Electrical and Electronics Engineering. The university where the survey is taken has handled the practical sections in the offline mode only.

3.4. Increase in Mental Stress

Teaching and learning online takes more time. It requires long hours of internet, device, and peaceful environment for preparation. 45% of faculty in HEI are not much aware of technology gradation and feel difficult to correct the bugs in digital environment. It increases the stress on the faculty. Similarly, the socio-economic status of the faculty families is also in poor stage which leads to the tensed mindset. It will affect the teaching and learning of faculty as well as student. Managing the family members and children, house works, inadequate space in the house in the middle-class faculty family leads them to frustration and discomfort. The additional workload in teaching, mentoring, research, and publication potentials forced an emotional breakdown. One-to-one communication in phone calls or whatsapp is required for student monitoring which needs extra time and effort.

3.5. Limited opportunity for monitoring

Assessment is done in online mode and video surveillance is difficult with the existing tool. In some HEIs AI-based surveillance for university examination was introduced, where as 100% guarantee is not achieved through that tools. In rural areas, there is an inability to use live examinations because of poor internet and power failure. It encourages the multiple- choice questions (MCQ and open book examinations. Remote learning in the online journey is the first step in a long journey, and required more monitoring facilities in future. The response of students in online classes is comparatively reduced from the beginning because of less monitoring. It is difficult to monitor the engagement of the student in virtual environment. In some cases, students switched on the meet and they are doing their regular duties. From the survey among 400 students the active participation of the students in online classes is shown in Figure 5.

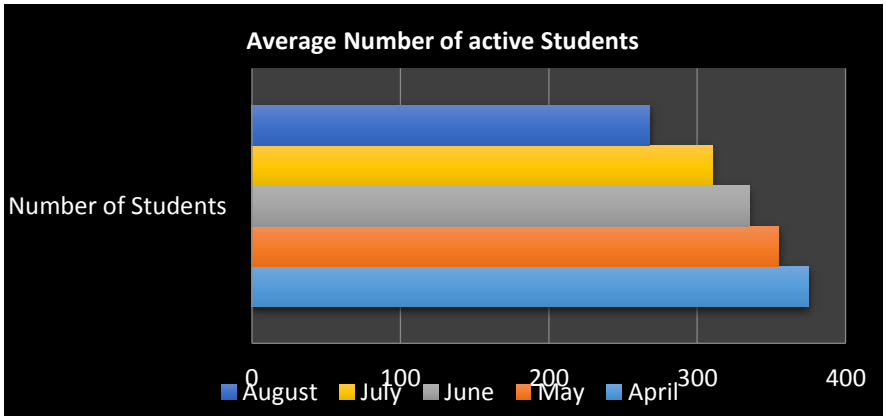

Figure 5. Active Participation of Students in online classes

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4. IMPACT OF COVID-19 ON STUDENTS OF HEI

Universities and Schools that are however to implement changes in the field in response to the novel coronavirus should take clues from others who have already taken over. They must analyze the steps some lecturers have taken to grasp what has worked, what has not worked, and the way to affect the challenges they will face. Since the spread of the illness is anticipated to urge worse before it gets better, managers should take immediate steps to shield their campuses and students in preparation for attainable closures. The upper education sector has withstood the tough economic times of the past, and can still do so. Within the digital age, universities and faculties are higher placed these days than ever before to offer students easy accessibility to furthering their studies online.

4.1. Personal Growth and Development

During lockdown, usage of online resource like online blogs, youtube, websites, and other social media significantly place a major role in student academic growth. Various online platforms were introduced and recording options were also there on such platforms. Students may be able to discover various learning methods through technology and various online tools. Instead of using lecture materials and text books, they are supposed to use online resources. The self-learning in an independent way enhances the personal growth and development of students. The usage of online resources before and during covid-19 in percentage is shown in Figure 6.

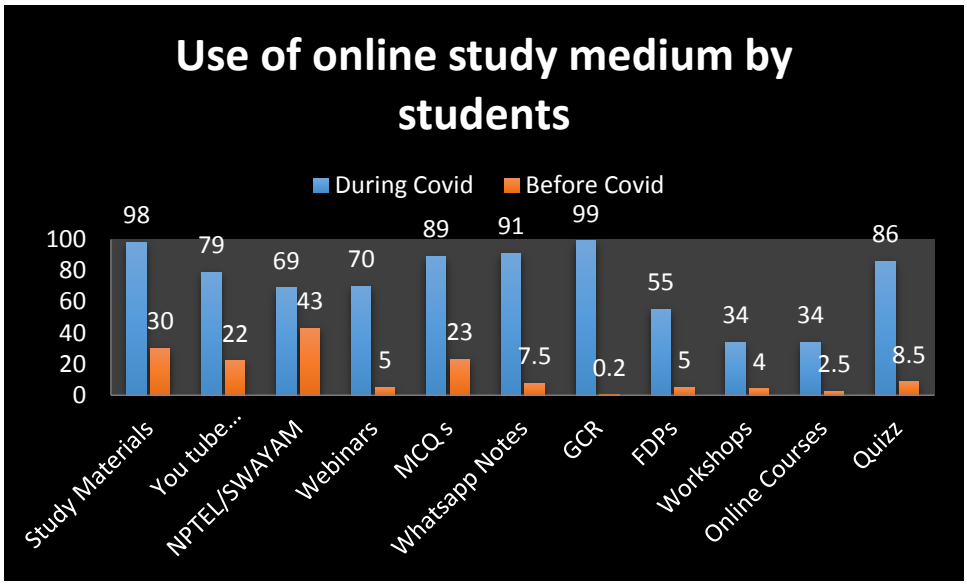

Figure 6. Use of online tools during Covid-19 by students

From figure 6 it is noticed that there is a rapid increase in online study tools during Covid -19 prior to the pandemic situation.

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4.2. Increase in student self-empowerment

Massive Open Online Courses (MOOCs) may challenge condemnations similar to the situation of learning is of an objective of the students having to learn more on their own (Miller 2016). In addition to institutional activities students attended more online certification courses, job oriented courses, online surveys conducted by various institutions. The innovation cell of the surveyed institution motivated the students to attend more MHRD-driven activities. They participated more number of hackathon, tokyathons, game developments, and start-up activities of their interest. 45 participated in innovation activities. Student can empower their strength in collaboration with other HEIs. Thus the startup and entrepreneur learning skill levels of students further increased.

4.3 Lack of resources

The lack of internet connectivity increase vulnerability among students in rural area because of improper network connection (Sarkar 2020). Long hours of internet are required to attend online classes, one device per student is required in a family. In India the socio-economic growth of families rural villages are poor, they cannot buy a smartphone for every individual. Similarly students are struggled with how to use these novel technologies. Less network speed in house due to immediate and exceptional network traffic increase the overhead of learning levels. They could not cope up with the classes and assessments. In more networks the usage of net with affordable rate is 1.5 GB per day. It is not enough to attend all classes.

Only 35.6 percent of all registered children receive some form of study material or activities from their teachers:

- The proportion of children in high school (Grade 9 and above) receiving learning materials was 37.3 percent, while the proportion of children in primary school (Grades 1-2) was 30.8 percent. The numbers have always been higher for children in private schools compared to public schools in all grades.
- Of those who received learning resources, 67.3 percent of public school students and 87.2 percent of private schools received them on WhatsApp. Public schools often used telephone calls and public visits more often than private schools.
- Of the enrolled children who did not receive materials, 68.1 percent of parents cited schools that did not send building materials, while 24.3 percent of households said that families did not have a smartphone as a reason. This figure is about 5 percent in public schools than in private schools.

4.4 Prefer social media and games for stress relief

The mental and physiological stress of students increased in pandemic periods. Students mostly spent their time in online games and social media. The usage of online entertainment increases in lockdown period. The stress relief mechanism used by the students in covid-19 is shown in Figure 7.

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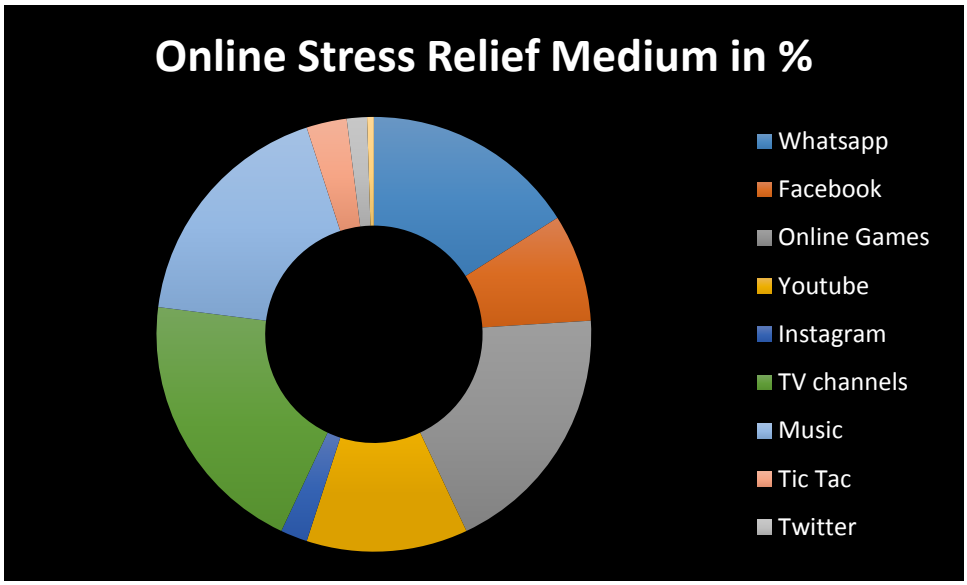

Figure 7. Distribution of preferred stress release platform

4.5 Other Challenges faced by students

It is hard to manage these academic activities and personal challenges. At the same time, mental stress and depressions are the major issues that were come across during this lock down period. In India, especially in rural areas lots of students take education loans for higher education. Stress and anxiety may be caused because of these student loans. The isolation creates psychological issues in HEIs students, and requires psychological and socio-emotional support mechanisms for students. The use of lab for fieldwork or practical exercises and inability to make use of it is also the serious issue faced by the students. Because of that, the student completed the course with lack of practical knowledge.

5.DISCUSSION

The pandemic disease switch over the traditional face to face mode rapidly, otherwise it might have taken lot of time for the HEI to switch over to online teaching mode. The use of online tools and the rate of attending online programs by students and faculty also increased in the pandemic period. The future of Covid-19 technology will make the teaching to blended mode and also changes the structure of the education system. The number of online courses attended by 400 students and 150 faculties during Covid-19 is listed in Table 2.

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Table 2. Number of online programs attended in different platforms

Online Programs Attended	Category	Delivered Platform					
		Google Meet	Zoom	WebEx	You tube streaming	Skype	Microsoft Teams
Webinars	Student	411	540	34	107	12	20
	Faculty	963	532	29	167	15	39
FDPs	Student	287	208	18	88	07	27
	Faculty	209	302	26	43	02	16
Hands on Training	Student	116	55	05	40	04	11
	Faculty	17	14	06	30	03	08
Online Certification Course	Student	121	42	05	18	12	03
	Faculty	17	13	06	11	10	01

The use of electronic gadgets like computer, laptop, smart phone and tablets also increased during pandemic period, it forced to use single gadget per student for attending online classes. The significance of the electronic device for attending online class is analyzed for 400 students among various departments and tabulated in Table 3.

Table 3. Gadget used for online classes by students.

Learning Category	Number	Mean	Lower 95%	Upper 95%	P-value
Smart Phone	320	2.2561	2.1165	2.4681	0.0024
Laptop/Desktop	60	4.1474	4.3875	3.9853	
Tablets	20	3.5231	3.8976	3.1451	
Statically significant (P< 0.05)					

The respondent students were surveyed based on the medium of online class. 80% of the student group used smartphones and 15% of the student's used laptop/desktop for education. Very less number of students only (5%, n = 400) used tablet. There is a gradual difference among all the mediums used (P = 0.0024) as mentioned in Table 3. From the study it is observed that the students preferred individual smart phone for attending online classes.

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From the above survey some suggestions are proposed in this paper for the benefit of management, students, and faculty to continue the online education effectively.

- To overcome the digital divide free internet and free digital gadgets should be given by Government or educational institutions.
- Free online training should be provided to faculty and student to adopt the teaching learning process using technology.
- Standard for online teaching learning by faculty must be established and obtained by HEIs in India so that the difference in the usage of online platform and tools among HEI can be eliminated
- The TV channel for each HEI should be implemented to broadcast the recording of all subjects and thus the demand based learning is implemented. The network issues can also be overcome.
- New assessment techniques should be considered in HEIs and it may be in the form of online presentation, creative projects, skits or one-to-one conferencing to indicate the real outcome
- New regulations and curriculum with demand-based learning must be implemented in HEIs to cope with real worlds situations.

6. CONCLUSION

This article has highlighted the impacts of Covid-19 on the management, staff, and students of rural higher education organizations in India. The current pandemic situation emerged the HEI to shift to virtual education and created the opportunity for blended learning. Online education is the highly recognized style of education during this Covid-19 period, and nobody knows when this pandemic will ends. UGC and MHRD have lunched many guidelines for virtual learning, to maintain equality in all HEIs in India. From survey it is observed that personal growth and usage of online tools is increased in virtual learning, some challenges are faced by both faculty and students of HEIs. In the end section some suggestions are given for the further improvement of student and staff welfare during Covid-19. The gap would not be satisfied in this pandemic situation is financial crisis and mental health of teachers and learners in HEIs. Government should take necessary actions to identify and solve the financial and mental issues faced by faculty, management, and student in higher educational institution.

CONFLICT OF INTEREST

There is no conflict of interest identified by the authors.

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