Research Article

A Descriptive Study to Assess the Impact and Perception of Online Classes on Student Community Pan India during COVID-19

Seema Rani[1], Suchhanda Bhattacharya[2]

[1]Associate Professor, [2]Tutor, Rufaida College of Nursing, Jamia Hamdard (Deemed to be University), New Delhi, India.

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Corresponding Author:
Seema Rani, Rufaida College of Nursing, Jamia Hamdard (Deemed to be University), New Delhi, India.
E-mail Id:
seema9rani@yahoo.co.in
Orcid Id:
https://orcid.org/0000-0002-3133-448X

A B S T R A C T

Introduction: During the COVID-19 pandemic, online classes in India as in other parts of the world, became a prioritised source for learning. The researchers in the present study attempted to assess the perception of online classes including their impact and challenges amongst the students.

Methodology: A quantitative approach using descriptive sample survey research design was incorporated to conduct the study. Subjects were students chosen from school and university. A structured questionnaire as Google Form was used to collect primary data. Descriptive statistics was employed to analyse the data.

Results: 97% of students spent 2 to 7 hours daily for online classes. Online classes give the right theoretical and practical experience as expressed by 55.4% and 21% respectively. 62% of students perceive that online grading system is less effective than offline grading system. Half of the subjects prefer face to face learning and one fourth preferred hybrid mode. 67.5% of students opined that online classes do not allow adequate interaction with the teachers. Among health impacts, 68%, 38%, 43% and 59% of the students reported eye, ear, and sleep and socialisation problems respectively. 74% of them reported drastic change in eating habits, while 76% of the subjects reported weight gain; posture problems were reported to be faced by 98 (62%) students; 57 (64.3%) reported pain in the back of the neck, 52 (58.2%) reported low back pain, 42 (42.9%) reported pain during forward bending of shoulders, and 26 (26.5%) complained of stiff shoulders.

Conclusion: Online classes at the present time are not considered a preferred mode of learning by students. The students identified various restrictions of online classes towards the understanding of subjects, limiting interaction with teachers and students asserted many negative impacts of prolonged online classes on their health.

Keywords: Perception, Online Classes, Student Community
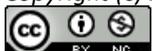
Introduction

Education has served the purpose of providing a foundation of beliefs and understandings to prepare students for the realities of life shift in the purpose of education has been observed from time to time and classrooms have slowly evolved to meet the demands of the day.[1]

Face to face interaction has been the traditional way of teaching; however, it has been supplemented by various digital modes such as text or WhatsApp messaging, emails, sharing links of the study material in different formats etc. since the introduction of the internet from 1990 onwards.

The health crisis because of COVID-19 is unprecedented. It was first detected at Wuhan province of China in December 2019 and then spread over the next 4 months to become a global pandemic as declared by the World Health Organization in March 2020. To counter this outbreak, many countries in the world including India enforced countrywide lockdowns which resulted in closure of schools, colleges and universities forcing educational institutions and students alike to rapidly migrate to an online mode of teaching and education. Online education though not a new concept for us was never regarded as the sole method of formal learning in schools or universities. However, during this pandemic, these became the only sources available to ensure continuous learning amongst students. To add to the complexity of the situation and because of the prevalent lockdown, evaluation of teaching and that of students also became online.

There is a huge disparity when it comes to internet access or computers in India. According to a national survey done in 2017-2018 in India, only 9% of households in India have access to either internet or computers and approximately 90% of the enrolled students have no access to online classes. This severely limits participation in online classes if that suddenly becomes the sole method of imparting education.

Background

A few existing studies[2-4] amongst university students have not shown very optimum feedback regarding online classes because of various reasons. However, there is a scarcity of literature assessing the impact of digital education, especially in a pandemic situation like that of COVID-19. The present study was envisaged to address this gap and tried to address the same.

The objectives of this study were to assess the perception of students regarding online classes as means of learning modality and to identify the challenges and issues faced by students while attending the online classes during the ongoing COVID-19 pandemic.

Methodology

The current study tried to assess the impact, perception of online classes amongst students from different parts of India and tried to understand the challenges faced by students while doing these online classes. A quantitative approach using descriptive sample survey research design was incorporated to conduct the study. The subjects for this study were chosen amongst school and university students via a simple random sampling, and a Google Form modified into a structured questionnaire was used to collect the primary data. This form had four sections as detailed below.

Section one was to gather information about students' sociodemographic variables, connections used by them and expenditure towards internet. Section two of the questionnaire assessed students' perception including teachers' capability for online mode of teaching and students' preference of the mode of learning and challenges towards online learning during COVID-19 pandemic. Section three identified the impact of online classes on students, in terms of health, sleep, socialisation, physical activity and eating habits. Section four identified issues and challenges faced by the students. 157 students from several schools and universities of eight states and two union territories of India responded to the survey during the months of January to April 2021. Administrative approval was sought from the schools and colleges. Written informed online consent was taken from all the research participants. To assess the perception a 10-point rating scale was used. The data was compiled and documented in a structured manner. The study was delimited to subjects, who had access to smartphones, were internet users, and could comprehend English. To ensure the validity of the content, the tool was given to 7 experts from the field of education, medicine and psychology. The suggestions from different experts were incorporated into the tool and accordingly, the tool was modified. Once the tool was ready, it was administered by the researcher to conduct the study. It took around 20-30 minutes for each study subject to complete the questionnaire. The reliability of the perception questionnaire was checked through Cronbach Alpha Test and was found reliable at r = 0.82. The reliability of the Impact Assessment Tool was checked by KR 20 formula and it was found reliable at r = 0.89. Data were analysed employing descriptive statistics.

Results

Section 1: Findings related to Sociodemographic Variables of Study Subjects

Table 1 depicts that 47.8% students came from middle school, and a large proportion i.e. 40.1% didn't have

uninterrupted power supply at home. 70.1% of the students spent2 to 7 hours for online classes. Only 43.9% subjects had separate room for attending online classes.

Table 1.Frequency and Percentage Distribution of Study Subjects related to Sociodemographic Variables (n = 157)

Sociodemographic Variables	Frequency	Percentage
Course of study		
Middle school	75	47.8
Secondary	40	25.5
Senior secondary	30	19.1
Graduation and postgraduation	12	7.6
Uninterrupted power supply at residence		
Yes	94	59.9
No	63	40.1
Internet connection used for attending classes		
Wi-fi through modem	102	65
Mobile data	45	28.7
Wi-Fi through hotspot	10	6.4
Number of hours spent for online classes		
Less than 2	6	3.8
2-4	76	48.4
5-7	69	43.9
More than 7	6	3.8
Monthly internet expense in Rupees		
Less than 500	27	17.2
501- 1000	78	49.7
1001-2000	32	20.4
More than 2000	20	12.7
Place of attending online classes at home		
Separate room	69	43.9
Shared room	29	18.5
Common living room	33	21
Any other	26	16.6

Subjects in the study came from eight states and two union territories across India. Also, the findings revealed that other than the school classes, 54% of the students spend 1 to 2 hours for online coaching/ tuition classes whereas 46% spend more than two hours for the same.

Section 2: Findings related to Perception of Online Classes among Students

Table 2 suggests that 44.6% students feel that online classes

do not give the right theoretical experience whereas 79% feel that online classes do not give the right practical experience. A total of 61.9% do not consider the online grading system as effective as offline grading system. When asked the preffered mode of learning, only 24.8% were in favour of exclusive online mode. In terms of convenience, merely 39.5% considered online classes as better.

Table 2.Distribution of Study Subjects related to Perception of Online Classes among Students (n = 157)

Categories	Frequency	Percentage
Can online classes give the right theoretical experience?		
Yes	70	55.4
No	87	44.6
Can online classes give the right practical experience?		
Yes	33	21
No	1124	79
Are online classes well organised?		
Yes	88	56.1
Most of the Times	40	25.5
No	17	10.8
Not Sure	12	7.6
Is the online grading system is more effective than offline grading system?		
Yes	60	38.2
No	97	61.8
Is the study material provided before the class?		
Yes	81	51.6
Most of the times	29	18.5
Sometimes	29	18.5
No	18	11.4
Is the study material provided after the class?		
Yes	72	45.6
Most of the times	29	18.5
Sometimes	29	18.5
No	27	17.4
Preference of learning through		
Online mode	39	24.8
Face to face mode	77	49
Mixed/ hybrid mode	41	26.2
Online classes are a better way of learning in terms of convenience		
Yes	62	39.5
No	95	60.5

20.3% of students perceived their teachers' capability of taking online classes as inappropriate, 34.5% moderately appropriate and 45.2% appropriate. Only 20% of students felt that teachers were not willing to clear their doubts during and/ or after online classes whereas the majority of the subjects felt that the doubts were cleared. 67.5% of students opined that online classes do not allow their interaction with the teachers.

Section 3: Findings related to Impact of Online Classes on Students

Regarding average screen time, 60% of students had 5 to 8 hours, 16% had 1 to 4 hours whereas the rest (24%) had more than 8 hours. 24% of students reported that they had same or reduction in weight whereas 76% of the subjects reported weight gain when compared to the current weight from pre-commencement of online class weight. Weight gain ranged from 10% to 25% of pre-online classes weight.

Table 3(a).Distribution of Study Subjects as per the Impact of Online Classes (n = 157)

Categories	Frequency	Percentage
Sleep disturbance due to online classes		
Yes	67	42.7
No	90	57.3
Eye problems due to online classes		
Yes	107	68.1
No	50	31.9
Problems in socialisation due to online classes		
Yes	92	58.6
No	65	41.4
Problems related to posture due to online classes		
Yes	98	62.4
No	59	37.6
Ear problems due to online classes		
Yes	59	37.6
No	98	62.6
Lack of physical activity due to online classes		
Yes	113	71.9
No	44	28.1
Problems related to eating habits due to online classes		
Yes	116	73.8
No	41	26.2

Table 3(a) shows that among the posture problemsfaced by the 98 (62%) students, 57 (64.3%) reported pain in the back of the neck, 52 (58.2%) low back pain, 42 (42.9%) forward bending of shoulders and 26 (26.5%) stiff shoulders. Among the ear problems, 47.5% complained of pain in ears, 20.3% giddiness/ vertigo, 16.9% discharge from ears, and 18.6% difficulty in hearing.
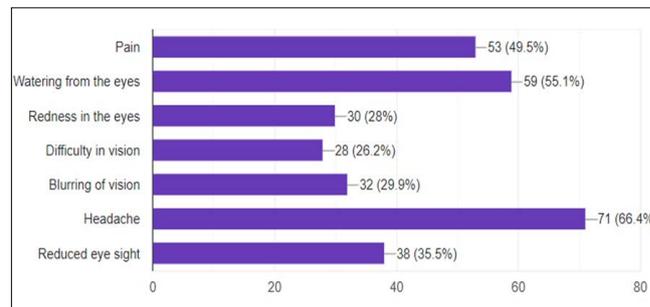
Figure 1.Bar Diagram showing Students Eye Problems

Table 3a and figure 1 show that a total of 68,1% of the subjects had eye problems due to online classes, out of which commonest probs include headache, watering of eyes, pain in eyes and reduced eye sight.

Table 3(b).Frequency and Percentage Distribution of Impact Level on Students (n = 157)

Impact Category	Frequency	Percentage
Negative	124	79
Positive	33	21

Out of 157 respondents, 113 felt altered physical activity during online classes. Out of these, 78 (69%) felt that there was little or no time for play and relaxation activities and 70 (61.9%) felt there was no or less time for exercise. A total of 50(31.8%) students found no or little time for persuing hobbies and 40(25.4%) had little or no time for extracurricular activities. The alternate physical activities included going for walk, climbing stairs, doing squats/ pushups, gym at home, jogging, yoga and skipping.

116 (73.8%) students expressed a change in their eating habits during the period of online classes. Problems reported were eating at irregular time 76 (65.5%), eating more junk food 36 (31%), overeating 30 (25.9%) and undereating 23 (19.8%). On the contrary, 28 (24.1%) reported that they had started eating healthier food during this period.

Table 3(b) clearly depicts that 79% of the subjects had negative impact due to online classes and only 21% had positive impact.

Section 4: Challenges and Issues

When subjective expression about online classes was sought from students, they gave mixed opinions. Many of the students were of the opinion that online classes were waste of time, effort, and money. While others expressed that recording in these classes helps to learn the subject better

and gives ample time for self-study. Still, others felt that it increases screen time leading to eye problems, headaches, and sleep disturbances. Due to a lot of distraction at home, their learning ability had been hampered. A large number, i.e. 43.9% of students, spent 5 to 7 hours for online classes and only 43.9% had a separate room for attending online classes. Inadequate internet connection, lack of mobile data, and more number of students in the family than the number of devices, lack of technical knowledge, and interrupted supply of electricity were other challenges faced by the students.

Discussion

Studies assessing the perception of online classes amongst university students during the pandemic has shown variable results.[5,6] Some students have appreciated the freedom to connect and engage with their teachers at a mutual comfort with the flexibility of time and space,[5] there have been others, who have highlighted issues with the unavailability of appropriate devices, limitation of mobile data and absence of adequate bandwidth for the internet services.[6] The current study results are partially in line with these studies as face to face and hybrid modes of learning are better as expressed by 49% and 26.2% students respectively. However, in the present study, 60.5% of subjects felt that online classes were inconvenient in contrast to the above-mentioned studies. The present study findings agreed with another study conducted amongst agriculture students[3] regarding the perception of flexibility and convenience of online classes.

Previous studies have indicated the lack of discussion amongst participants during online classes and have cited access to the physical library as in universities during online classes.[7] In the present study, 67.5% of students perceived that online classes reduce interaction with the teachers.

As per the current study, 79% of students opined that online classes cannot give adequate practical experience whereas 55.4% of them felt that online classes can give the right theoretical experience. 61.8% were not satisfied with the online grading system. 61.8% of students found the online evaluation system less effective. These results are in concordance with the study conducted by Muthuprasad T, et al. on students' perception and preference for online education in India during COVID -19 pandemic. The quoted study also revealed that students felt that practical oriented courses cannot be effectively taught by online mode.[8] Siripongdee K et al.[9] in their article had opined that while theoretical courses can be conducted online, practical, or technical courses need to be conducted offline to ensure uniform teaching practices and enable monitoring and guidance for students.

In another article Qi M, et al.[10] had commented on the

lack of physical activity amongst the Chinese population during COVID-19 lockdown in China and how this had a negative impact on their overall wellbeing and quality of life. Similarly, online classes caused a sedentary lifestyle. The present study results are in agreement with the above studies as 78 (69%) subjects felt that there was little or no time for play and relaxation activities and 70 (61.9%) felt there was no or less time for exercise. Also, 76% of the subjects reported weight gain when compared to the current weight from pre-commencement of online class weight.

98 (62%) of the students reported posture problems in the present study. 57 (64.3%) reported pain in the back of the neck, 52 (58.2%) low back pain, 42 (42.9%) pain during forward bending of shoulders and 26 (26.5%) complained of stiff shoulders. Eye problems included pain (49.5%), headache (66.4%), watering from eyes (55%) and reduced eyesight (35.5%). 42.7% had sleep disturbances. These findings are in concordance with the study by Choudhary MS et al.[11] on school children, which also revealed that about 21% of subjects suffered upper back pain, 18% low back pain, 13% eye strain, 11% headache and 6% had irregular sleep.

During the lockdown, many students had to move back to their hometowns located in remote areas with slow or inadequate access to the internet which made it difficult for them to attend online classes. In addition, the necessity to sit in front of a screen for prolonged periods during online classes further added to their woes.[11] Limited access to laptops, smartphones and seamless internet were other challenges.[12] Similar challenges and issues were faced by the subjects in the current study.

Conclusion

Following the declaration of COVID-19 as a pandemic by the World Health Organization, schools and colleges had to abruptly shift to an online method of education to ensure the continuity of prescribed syllabus and curriculum. This abrupt change without any prior notice put schools and colleges and students on the spot as they had to adapt to this new method of teaching as the sole method for a prolonged period of time. There has been a heterogeneity in terms of experiences with this method of teaching in different countries as well as within a single country e.g., India. In the present study, we have elaborated on not a very positive experience amongst students as they have evaluated this online method of teaching during the pandemic. Undoubtedly, online method of teaching is a mixed bag. There are positives like convenience, reducing time for travel and round the clock access. At the same time, there are glaring disadvantages especially in a developing country like India with inadequate internet access and unequal distribution of proper devices being available to

all, not discounting the lack of physical interaction and proper guidance and monitoring of students.

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