

Original Research Article

Perception of undergraduate nursing students regarding e-learning during COVID-19 pandemic in West Bengal

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ABSTRACT

Background: The education system has faced severe trouble worldwide in COVID-19 pandemic since the beginning of 2020. In this context every educational institute including nursing colleges has adopted E-learning for smooth continuation of teaching learning process. Keeping this in mind this descriptive survey study aimed to identify the perception of the undergraduate nursing students towards E-learning during COVID 19 phase.

Methods: A cross sectional web-based survey has been conducted through Google form with in west Bengal. By using snowball sampling, 327 sample were selected as study participants and they were received the structured questionnaire and submitted after giving their responses. Data were extracted and analysed with the help of different descriptive statistics, such as frequency, percentage, mean, median, standard deviation and inferential statistics in terms of chi-square by using SPSS 20.0 (IBM SPSS Statistics for Windows, version 20.0).

Results: In this article 327 participants were enrolled among them 70.95% had indifferent perception, whereas only 14.07% possessed unfavourable perception towards E-learning. Compared with the indifferent percentage the participants with favourable perception was very less i.e. only 14.98%. We also found perception of E learning has no association with demographic variables but significant association is there between gadgets used to attend E learning.

Conclusions: Nursing faculties need to address the student's perception towards e-learning so that efforts can be directed towards improving their learning experience.

Keywords: COVID 19, E-learning, Perception, Pandemic

INTRODUCTION

E- learning as the “e” implies for “electronic” includes all form of educational activities carried out by individuals or group, while working online or off line and synchronously or asynchronously via standalone or networked computers and other electronic devices.¹ The educational system has vastly affected due to COVID 19 pandemic situation along with the effect on human life over 3.91 crore people across the globe. UNESCO highlighted that in India, around 32 crores college students are suffering with their learning process due to this pandemic.²

Although there is indefinite number of processes in education system, most of the institutions adopted of face-to-face lectures- discussion with online teaching learning process during this pandemic. But student and teachers are still in dilemmas with questions in mind, that whether this process can achieve the objectives of university curriculum or not. COVID 19 pandemics have already changed the landscape of education and nursing education as well.³ Thus, to remain relevant, universities will need to work on reinventing their learning environments which must facilitate expansion of digitalisation and complement student-teacher and teaching staff relationships.^{2,3}

Need for the study

James M. Marshal established that people remember only 10% of what they read, 20% of what they hear, 30% of what is visible to them and 50% of what they hear and see. With the advent of technologies which combines images, texts and audio all in one learner can make the percentage even higher than 50%.⁴ Studies by Coopasami et al and Ali et al reported much earlier this pandemic that, nursing students are psychologically ready for e-Learning although technological and equipment readiness among them was lacking.^{5,6} American Nurses Association (ANA) suggested in 2010 that, online, virtual, simulated and competency-based learning should be attempted in educational institutions to expand opportunities to students and increase efficiency of nursing students.⁷

Existing literature shows that nursing students found this pandemic moderately stressful.⁷ This was further triggered by students' personal problems such as older students with family responsibilities, poor technological accessibility, poor performance in online exam; although passing an online exam enhances nurses' attitude towards e-learning.⁶⁻⁹ In this context teachers are ready to find out the outcome of the online teaching in each and every corner. Keeping these in mind perception of nursing students on e-learning need to be understood, so that their learning experience can be improved in the next academic year due to uncertainty of future in the short-term control of COVID-19.¹¹

Objectives of the study was to identify the perception of the undergraduate nursing students towards e-learning during Covid-19 pandemic and to find out the association of undergraduate nursing student's perception with reference to selected background information.

METHODS

A descriptive cross-sectional web-based survey was conducted among undergraduate nursing students from 1st year to 4th year of various college of nursing, Kolkata, from September 2020 to October 2020. A Snowball sampling technique was employed to enrol survey participants. Undergraduate nursing students of B.Sc. Nursing course from 1st to 4th year were included. Participation in the study was fully voluntary and non-commercial. In the pandemic situation as we were unable to approach individual nursing colleges for participation. Thus, the link of the questionnaire was sent mainly through E-mails, WhatsApp to the contacts of the investigators from the different geographic areas of West Bengal and then the primary contact was asked to share the link to their batchmates. The link consisted of an online structured questionnaire for gathering basic details of the participants and a likert scale developed by using Google forms, along with consent form. Through this, the link was forwarded to nursing students apart from the first point of contact and so on. On receiving and clicking the link, the participants were automatically directed to the

information about the study and informed consent. After they agreed to take the survey, they filled up their details and so on. Though estimation of sample size is necessary, but in the present study we did not restrict the number of participants; as we required large number of samples from different colleges in an around West Bengal, India. Approval was obtained and necessary permissions were taken from the authorities of a private nursing college from where the author belongs.

Instrument and scoring system A structured questionnaire related to background information of participants and Likert scale with 25 items on perception of nursing students towards e-learning was developed and validated by seven experts and thereafter readability of the tool was checked by 4 experts and 4 nursing students. Then a pilot web survey was conducted among 10 randomly selected nursing students. All these participants were excluded from the final survey. The 6-point Likert scale showed reliability coefficient (Cronbach's alpha) 0.83 resembling a reliable tool.

The Likert scale had items from the areas as, 1) Perceived advantages and disadvantages of E-learning (item number 1, 3, 4, 5, 6, 7, 11, 19, 23), perceived professional issues (item number 8, 12, 13, 14, 17, 20, 22, 24, 25), perceived personal issues related to e-learning (item number 9, 10, 15, 18, 21, 23) and logistic concerns in item number 2, 16. The participants had to rate the items on how they perceived e-learning. The range of responses and scores was; Strongly disagree (0), disagree (1), somewhat disagree (2), somewhat agree (3), agree (4), and strongly agree (5). Total scores ranged from 0 to 125 with higher scores reflected positive perception. Reverse scoring was done for items 10, 12, 15, 21, 23, 25.

Data analysis

The collected data were stored in Google drive and protected by username and password. Descriptive statistics were calculated to summarize demographics and key variables. Inferential statistics were applied. The chi-square test was applied to examine the level of association among variables. The data were coded and entered in Microsoft excel sheet and analysed. Collected data were analysed using SPSS 20.0 (IBM SPSS Statistics for Windows, Version 20.0. Armonk, NY: IBM Corp). $P < 0.05$ was considered statistically significant.

RESULTS

An online (Google) survey was conducted related to awareness among the Indian population during COVID19 pandemic. A total of 351 samples were responded and all participants were from Indian origin and above 17 years of age. 11 respondents were excluded because of incompleteness of their response about questionnaire and finally 327 responses were analysed. The study, by default included all individuals who understood English, had access to the internet and was willing to participate in

the study. A descriptive statistics-based analysis was conducted to illustrate the background data. The frequency of percentage distribution of background data of undergraduate students depicts that, majority 66.4% belonged to the age group of 21-23 years, used internet daily before lockdown (80.7%).

The respondents were mostly 4th year (39.1%) and 3rd year (28.4%) students, 75.2% students never had an earlier experience of e-learning. Though 69.7% of students were aware of availability of institutional internet access, e-journals and computer lab only 37.9% have used those facilities before lockdown. Majority of students attended e-learning sessions through smart phone (96.94%) and 92.4% had the ownership of the gadget they used. The perception score among undergraduate students ranged from 68-123 with Mean(SD) of 104.49 (8.19). Majority of the respondents (70.95%) had indifferent perception towards e-learning.

Question wise analysis of responses represented in the Table 3 revealed that, Majority agreed that e-learning helped them to understand theoretical sessions (70.03%), and (78.59%) agreed willingness to attend webinars in future. The respondents of 83.79% agreed that have missed their interactions with patients and thus 80.43% agreed to prefer traditional classroom session over e-learning. 32.72% disagreed that e-learning is easier to understand demonstration sessions.

Almost 50.46% reported feeling of being overloaded and eye strain (77.06%) after e-learning, 70.03% agreed that peer group discussion is difficult in e-learning session. 64.84% agreed that doubts are cleared better in classroom, 53.52% felt anxious when they heard that e-learning sessions will be conducted, 58.41% agreed that they felt anxious about completion of syllabus. Around 57.19% of participants responded that they feel special training of teachers are required for e-learning, 84.71% believed that technological interruption caused disturbances during learning. Undergraduate nursing student's perception didn't have any significant association in terms of current year of academic study, previous experience of e-learning, institutional availability of e-learning facilities or its previous access, type of gadget used for e-learning.

Although, gadgets used in learning session was significantly associated with perception towards e-learning. Thus, the findings from the current study

indicated that, although students attended to the e-learning sessions during the pandemic but they still prefer over traditional teaching sessions over e-learning as represented by their indifferent attitude and individual responses against each question.

Table 1: Frequency and percentage distribution of selected background data of undergraduate students (n=327).

Background data	Frequency (%)
Age (years)	
18-20	89 (27.2)
21-23	217 (66.4)
24-26	18 (5.5)
27-29	3 (0.9)
Current academic year of study	
1 st year	24 (7.3)
2 nd year	82 (25.1)
3 rd year	93 (28.4)
4 th year	128 (39.1)
Internet usage before lockdown	
Daily	264 (80.7)
Weekly	48 (14.7)
Monthly	15 (4.6)
Previous experience of attending e-learning sessions through institute	
Yes	81 (24.8)
No	246 (75.2)
Knowledge of institutional access to internet, computer lab, e- journal	
Yes	228 (69.7)
Maybe	52 (15.9)
No	47 (14.4)
Previous experience of accessing institutional internet	
Yes	124 (37.9)
No	203 (62.1)
Gadgets used to attend e-learning sessions	
Laptop/Desktop	10 (3.06)
Smart Phone	317 (96.94)
Ownership of the gadget used	
Shared from parents	25 (7.6)
Your own use	302 (92.4)

Table 2: Range, mean, standard deviation of perception and frequency and percentage distribution of perception of undergraduate nursing students (n=327).

Perception	Range	Frequency	Percentage (%)	Mean	SD
Unfavourable (<Mean-1 SD)		46	14.07		
Indifferent (Mean±1 SD)	68-123	232	70.95	104.49	8.19
Favourable (>Mean±1 SD)		49	14.98		

Table 3: Frequency, percentage, mean and standard deviation of perception of nursing students towards e-learning across statements (n=327).

Statements	Strongly disagree/ Disagree (%)	Somewhat agree/ somewhat disagree (%)	Strongly agree/ Agree (%)	Mean score (SD)
Perceived advantages and limitations of e-learning				
I have found E-learning sessions convenient	13 (3.97)	114 (35.17)	200 (60.86)	4.57 (0.95)
I believe that E-learning sessions have helped me to understand only theoretical sessions	22 (6.73)	76 (23.24)	229 (70.03)	4.73 (1.11)
It's easy to understand procedures through E- demonstration sessions	107 (32.72)	139 (42.51)	81 (24.77)	3.63 (1.49)
I felt anxious, when I first heard of E-learning sessions for taking class	56 (17.12)	96 (29.36)	175 (53.52)	4.23 (1.41)
I have enjoyed interactions with teachers during E-learning sessions	25 (7.65)	90 (27.52)	212 (64.83)	4.56 (1.15)
It's difficult to make peer group discussion during E-learning sessions	34 (10.40)	64 (19.57)	229 (70.03)	4.67 (1.23)
I have missed my clinical interactions with patients badly as there was no clinical duty	15 (4.59)	38 (11.62)	274 (83.79)	5.13 (1.07)
Use of AV Aids is much effective in e-learning than classroom teaching	50 (15.29)	86 (26.30)	191 (58.41)	4.35 (1.41)
I felt doubts are cleared more swiftly in classroom rather than e-learning sessions	30 (9.17)	85 (25.99)	212 (64.84)	4.61 (1.29)
Perceived professional issues				
I believe that critical understanding of a lesson is enhanced in E-learning in comparison to classroom	88 (26.91)	108 (33.03)	131 (40.06)	3.75 (1.54)
Students can easily avoid attending or concentrating on E- learning classes	43 (13.15)	73 (22.32)	211 (64.53)	2.45 (1.34)
I have enjoyed e-learning as I stayed at home all the time	25 (7.65)	88 (26.91)	214 (65.44)	2.41 (1.14)
I feel special training of teachers are required for conducting E-learning sessions	39 (11.93)	101 (30.88)	187 (57.19)	4.45 (1.27)
I will attend webinars in future to improve my professional knowledge.	12 (3.67)	58 (17.74)	257 (78.59)	4.96 (1.02)
Time management during E-learning sessions are problematic	35 (10.70)	79 (24.16)	213 (65.14)	4.59 (1.27)
I felt happy as I didn't require to attend library for making notes	104 (31.80)	120 (36.70)	103 (31.5)	3.48 (1.49)
I felt stressed that syllabus of the course might not get completed before exam	51 (15.6)	85 (25.99)	191 (58.41)	2.58 (1.44)
I felt e-learning is helpful as it doesn't requires taking notes from lectures, as I can store the class videos	68 (20.8)	112 (34.25)	147 (44.95)	3.96 (1.54)
Perceived personal issues				
I believe technological interruptions causes disturbances during E-learning sessions	15 (4.59)	35 (10.70)	277 (84.71)	5.16 (1.07)
E-learning sessions hampered my social networking (such as use of	112 (34.25)	107 (32.72)	108 (33.03)	3.45 (1.57)

Continued.

Statements	Strongly disagree/ Disagree (%)	Somewhat agree/ somewhat disagree (%)	Strongly agree/ Agree (%)	Mean score (SD)
facebook, whatsapp etc.).				
I will prefer traditional classroom learning than E-learning	15 (4.59)	49 (14.98)	263 (80.43)	5.03 (1.11)
I have felt increased eye strains due to E-learning sessions	19 (5.81)	56 (17.13)	252 (77.06)	5.02 (1.12)
I felt overloaded after each day of E-learning sessions.	58 (17.74)	104 (31.80)	165 (50.46)	4.24 (1.45)
Perceived logistical concern				
E-learning sessions are expensive than contact sessions	35(10.71)	86 (26.29)	206 (63)	4.55 (1.21)
Arranging technical gadgets for E-learning was difficult for me	74 (22.63)	118 (36.09)	135 (41.28)	3.92(1.47)

Table 4: Association of student's perception with selected background data.

Selected background data	Unfavourable	Indifferent	Favourable	Chi-square	P value
Current academic year of study					
1 st year	3	16	5	9.91	.128 ^{NS} (df = 6)
2 nd year	10	59	13		
3 rd year	8	76	9		
4 th year	25	82	21		
Internet usage					
Daily	39	193	32	6.79	.15 ^{NS} (df = 4)
Weekly	3	35	10		
Monthly	4	10	1		
Previous experience of e learning					
Yes	11	58	11	0.59	0.74 ^{NS} (df =2)
No	33	171	43		
Knowledge of institution and internet access to computer lab, journals					
Yes	31	161	36	1.46	0.83 ^{NS} (df = 4)
Maybe	5	37	10		
No	8	31	8		
Previous experience of accessing institutional internet					
Yes	17	86	21	0.05	0.98 ^{NS} (df =2)
No	27	143	33		
Gadgets used to attend e-learning sessions					
Laptop/Desktop	2	3	4	6.68	0.35* (df =2)
Smart Phone	42	226	50		
Ownership of the gadget used					
Shared from parents	2	18	5	0.81	0.67 ^{NS} (df = 2)
Your own use	42	211	49		

*significant at p<0.05.

DISCUSSION

In this current study 66.4% belonged to the age group of 21-23 yrs., used internet daily before lockdown (80.7%). Most of the respondents (75.2%) never had an earlier experience of e-learning. Though 69.7% of students were aware of availability of institutional internet access, e-journals and computer lab only 37.9% have used those facilities before lockdown. Majority of students attended e-learning sessions through smart phone (96.94%) and

92.4% had the ownership of the gadget they used. This is similar with globally reported findings which revealed that students preferred mobile because student-teacher interaction through was felt to be easier as compared to other devices and learning can happen anytime and anywhere.^{13,16-18}

Majority of the respondents (70.95%) had indifferent perception towards e-learning whereas Abbasi et al found

negative perception among medical students in this regard.¹³

In this study 78.59% agreed to attend webinars in future. Similar interest among registered nurses was reported by Opeyemi et al.¹⁴ Majority of the respondents agreed that e-learning helped them to understand theoretical sessions (70.03%), 83.79% agreed that have missed their interactions with patients and thus 80.43% agreed to prefer traditional classroom session over e-learning. 32.72% disagreed that e-learning is easier to understand demonstration sessions. This finding is congruent with studies conducted in countries like Malaysia, China, Singapore etc. are the places where students reported e-learning as less appealing due to practical constraints of learning in the lab/clinical environment.²⁰⁻²²

Participants reported anxiousness (53.52%) when they heard that e-learning sessions will be conducted, 58.41% agreed that they felt anxious about completion of syllabus. Similar dilemmas were reported by nursing students globally.⁶⁻⁹ Almost 50.46% reported feeling of being overloaded and eye strain (77.06%) after e-learning. Similar Digital Eye Strain (DES) due to e-learning among children has been reported by Mohan and colleagues.¹⁵ 70.03% agreed that peer group discussion is difficult in e-learning session. 64.84% agreed that doubts are cleared better in classroom. There is paucity of data of similar nature till date as very few studies have addressed the perception of nursing students. The current study is having comparatively large sample size in this regard and unique in Indian scenario. Due to the limited resource availability, we were unable to involve nursing students all over the country. Further should be carried out to find the factors influencing nursing students' perceptions towards e-learning and also studies exploring nursing faculties experience of e-learning need to be considered.

Limitations

The study is limited to the undergraduate nursing students of West Bengal which by default consisted of only female candidates thus gender-based variations couldn't be assessed. Hence, the findings cannot be generalized.

CONCLUSION

It can be said that this pandemic has thrown a challenge to the educational technology reminding the theory of "Survival of the fittest". Nursing faculties needs to address the perceptions of the students so that the best possible teaching method can be utilized in near future as per their needs.

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