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Self-efficacy of online learning among nursing students during COVID-19 pandemic

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ABSTRACT

Background: Coronavirus disease 2019 (COVID-19) pandemic led to unprecedented effect over the nursing education. First time exposure of the nursing students with the digital learning has raised a question regarding their self-efficacy in navigating the online courses effectively. This study aimed to assess the self- efficacy of online learning among nursing students during Covid-19 pandemic.

Methods: A descriptive cross-sectional web-based survey was conducted between May to June 2021 to assess the self-efficacy of online learning among nursing students in India. Data collection was done through Google forms that was sent to all the potential respondents through email, messenger and whatsapp. Online learning self-efficacy scale (OLSES) was used for assessing the efficacy of online learning.

Results: Online survey was completed by 332 nursing students from various nursing colleges of Uttar Pradesh and New Delhi, India. Majority (81.6%) of the participants were female. Nearly half (50.9%) of them were satisfied with the online classes. Maximum (77.4%) had poor self- efficacy scores in learning domain. Only 77 (23.2%) of students had overall good online learning self-efficacy.

Conclusions: The study revealed that majority of the nursing students had poor overall as well as domain wise online learning self-efficacy scores, which highlights the need for urgent identification of possible predictors. Appropriate skill-based trainings should be designed and provided to the students before exposing them to the online learning. This will aid them in gaining confidence and mastery in the skill of navigating the online courses.

Keywords: Self- efficacy, Online learning, Nursing education, COVID-19 Pandemic, Nursing students

INTRODUCTION

The Novel Coronavirus Disease 2019 (2019-nCoV) was originally started as an outbreak of pneumonia of unknown etiology in Wuhan, and was declared a global pandemic by World Health Organization (WHO) on 11th March, 2020. Rapidly escalating pandemic crisis has affected every aspect of human life, with potentially devastating social, economic and political implications (United Nations Development Programme 2020).

In order to mitigate the effect of pandemic, Indian government has adopted various strategies which included social distancing measures, suspension of mass gatherings, suspension of public transports and the provisional closure of schools and educational institutions.^{3,4} It led to the transposition in the entire dimensions of societal activities predominantly recreational and educational activities.⁵ The unsolicited closure of educational institutions modified the complete prospect of education. As a consequence, the introduction of online system of education became a

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requisite to ensure the unhindered delivery of educational activities and this way, institutions were bound to reframe their curriculum accordingly.⁶

This unexpected transition of educational system led to uncertainties among the nursing students. Many of the students expressed their concerns regarding the interruption of the programme following their removal from the clinical areas, which made them less confident and unsure about the progression of their course. Moreover, students also faced several challenges related to technology infrastructure and support, time management, learning space, family, and work. They were skeptical regarding virtual communication through an online platform; and were not sure when and how to ask queries. Furthermore, connectivity issues and distractions in the learning environments were the major impediments.

Despite many negative aspects related to dependence on technology for education, there were numerous benefits witnessed by the students, which included availability of recorded lectures for revision among many others.⁷ Although, many researches have been done lately in the context of digital education in the field of nursing education. Still, there is a dearth of evidences regarding the self-efficacy of nursing students with respect to navigating their courses online. For this reason, it is important to evaluate if these current online teaching methods are feasible and efficacious as in-class teaching. Self-efficacy is the belief we have in our own abilities, specifically our ability to meet the challenges ahead of us and complete a task successfully.8 Current situation has posed many academic challenges for the students as online learning has become a necessity rather than an option, with this the students are required to accomplish multiple tasks associated with digital learning which includes joining the sessions, sending the assignments through mail, communicating with the teachers etc. Therefore, the present study was planned to assess the self-efficacy of online learning among nursing students during COVID-19 pandemic. This knowledge will help nursing faculty in identifying and eventually overcoming various barriers related to digital learning and will assist them in incorporating novel methodologies to make teaching and learning process more student friendly and efficacious.

METHODS

A web-based cross-sectional survey was conducted among nursing students of various schools and colleges of nursing in Uttar Pradesh and New Delhi India. The study was conducted between May to June 2021 with the purpose of assessing the self-efficacy of online learning among nursing students. Data collection was done by investigators with the help of questionnaire created through Google forms that was send to all the potential respondents through email, messenger and WhatsApp. By aid of snowball sampling, they were requested to forward the survey link to their batch mates, juniors and seniors so as to obtain maximum participation. The questionnaire clearly

explained the objectives of the study and participants were provided the option to withdraw voluntarily if appropriate. Inclusion criteria of the study were: nursing students who gave their consent for participation, having smart phones and access to internet, and currently taking scheduled and regular online classes conducted by the institutes. Students were excluded if they were not taking prescribed online classes on regular basis.

Sample size

Sample size was calculated by taking 99% confidence level, 10% margin of error and 50% population proportion, which came out to be 167; we managed to get 332 responses in our study which is our final sample size. Data was collected unanimously; investigators refrained from collecting any information which can reveal the identity of respondents.

Questionnaire

Various information was collected pertaining to the study such as age, gender, academic year of study, course, platform used for online learning etc. with the help of selfdeveloped tool. The efficacy of online learning was assessed using standardized online learning self-efficacy scale (OLSES) originally developed by Zimmerman et al.⁹ Permission was obtained for using and modifying the tool. OLSES consists of three subscales, these are: learning in the online environment (a=0.890), time management (a=0.855) and technology use (a=0.843). Subscales were further divided into twenty-two tasks which were rated by the participants on a six-point scale. A rating of one signified very poor level of task performance by the participants; while rating of six indicated that participants can perform the task with excellency. Maximum score of the scale was calculated to be 132, Score higher than 80% (i.e., 105) was considered as overall good self-efficacy in online learning.

Statistical analysis

The collected data were coded and summarized in master data sheet using Microsoft excel spreadsheet. Statistical package for social sciences (SPSS) 20.0 version was used for the data analysis; both descriptive and inferential statistics were analysed. Descriptive statistics included frequency, percentage, mean, standard deviation and range. Chi-square test was used to find out the association between selected variables and overall online learning self-efficacy scores. The level of significance was set at p<0.05.

RESULTS

The present online survey was completed by 332 nursing students. Mean age of participants was 21.45±2.9 years with majority (81.6%) being female. Participants predominantly (51.2%) belonged to a joint family, and (60.8%) of them resided in rural area. Majority (62.7%) of the participants were pursuing B.Sc. (N) course. (Table 1).

Table 1: Socio-demographic characteristics of the participants (n=332).

	Frequency (%)
Age (years)	
Mean±SD (Range)	21.45±2.9 (17-48)
Gender	,
Male	61 (18.4)
Female	271 (81.6)
Area of residene	
Rural	202 (60.8)
Urban	130 (39.2)
Marital status	
Married	37 (11.1)
Unmarried	295 (88.9)
Type of family	
Nuclear	162 (48.8)
Joint	170 (51.2)
Course	\-\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
GNM	88 (26.5)
P. B. B. Sc (N)	16 (4.8)
B. Sc (N)	208 (62.7)
M. Sc (N)	20 (6.0)
Academic year	20 (0.0)
1 st Year	116 (34.9)
2 nd year	105 (31.6)
3 rd year	81 (24.4)
4 th year	30 (9.0)
Father's education	30 (3.0)
Illiterate	13 (3.9)
Basic (upto 8 th class)	35 (10.5)
Secondary level (9-12 th	33 (10.3)
class)	112 (33.7)
Bachelor level	114 (34.3)
Mothers and above	58 (17.5)
Masters education	(· · · ·)
Illiterate	35 (10.5)
Basic (upto 8th class)	101 (30.4)
Secondary level (9-12 th	
class)	111 (33.4)
Bachelor level	54 (16.3)
Masters and above	31 (9.3)
Family income (per	
month)	
Rs. <10,000	133 (40.1)
Rs. 10,000-40,000	134(40.4)
Rs. 40,000-120000	46 (13.9)
Above Rs 120000	19 (5.7)

Approximately half (52.4%) of participants had no exposure to online classes before the outbreak of COVID-19 pandemic. Participants predominantly were using mobile phones with cellular data for attending online classes.

The study also found that, zoom was the commonly used platform among many others for accessing the classes. Majority (85.2%) of the participants believed that online learning should be continued during Covid-19 pandemic which may be attributed to safety concerns of the students (Table 2). Surprisingly, it was found that most (42.8%) of students were satisfied with the online classes (Figure 1). Online learning self-efficacy of participants as measured by OLSES is explained in Table 3.

Table 2: Online class related characteristics of participants (n=332).

	Frequency (%)				
Ever received online class before COVID-19					
Yes	158 (47.6)				
No	174 (52.4)				
Type of gadget used for at	tending online class				
Mobile	278 (83.7)				
Computer/laptop	3 (0.9)				
Both	51 (15.4)				
Type of internet connection	n				
Cellular/Mobile	237 (71.4)				
Wifi	10 (3.0)				
Cellular /wifi/ both	85 (25.6)				
Access to internet facility	at own home				
Yes	269 (81.0)				
No	63 (19.0)				
Should online learning be	continued during this				
pandemic?					
Yes	283 (85.2)				
No	49 (14.8)				
Mode of online class					
Zoom	203 (61.1)				
Google meet	91 (27.4)				
Skype	1 (0.3)				
Whatsapp chat/ video call	23 (6.9)				
Webex meet	6 (1.8)				
Jitsy	7				
Youtube	1				

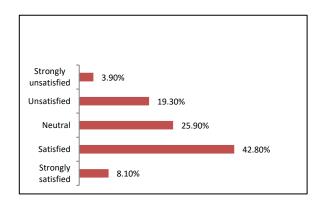


Figure 1: Perceived level of satisfaction from online classes.

Table 3: Online learning self-efficacy of participants (n=332).

Table 3: Online learning self-efficac	ev of partici	pants			(n=332)	
	Online Learning Self-efficacy			Frequency (%)		
	Excellent	Very good	Good	Average	Poor	Very poor
Navigate online course material efficiently	29 (8.7)	44 (13.3)	91 (27.4)	106 (31.9)	34 (10.2)	28 (8.4)
Find the course syllabus online	54 (16.3)	54 (16.3)	99 (29.8)	72 (21.7)	33 (9.9)	20 (6.0)
Communicate effectively with my	55 (16.6)	57 (17.2)	67 (20.2)	79 (23.8)	38 (11.4)	36 (10.8)
teacher/instructor via e-mail	33 (10.0)	37 (17.2)	07 (20.2)	19 (23.6)	36 (11.4)	30 (10.8)
Communicate effectively with			0.4.7.4.4		40.44.5	• • • • • • • • • • • • • • • • • • • •
technical support via e-mail,	52 (15.7)	61 (18.4)	81 (24.4)	54 (16.3)	48 (14.5)	36 (10.8)
telephone or live online chat						
Submit assignment online through mail or whatsapp	87 (26.2)	72 (21.7)	67 (20.2)	59 (17.8)	29 (8.7)	18 (5.4)
Overcome technical difficulties						
with my own	47 (14.2)	54 (16.3)	87 (26.2)	76 (22.9)	38 (11.4)	30 (9.0)
Accessing marks of the	10 (14 5)	76 (22.0)	77 (22.2)	66 (10.0)	20 (11 4)	27 (0.1)
assignments and tests	48 (14.5)	76 (22.9)	77 (23.2)	66 (19.9)	38 (11.4)	27 (8.1)
Manage time effectively	55 (16.6)	61 (18.4)	73 (22.0)	79 (23.8)	38 (11.4)	26 (7.8)
Complete all assignments on time	97 (29.2)	79 (23.8)	58 (17.5)	59 (17.8)	18 (5.4)	21 (6.3)
Learn to use a new type of technology efficiently	72 (21.7)	75 (22.6)	81 (24.4)	63 (19.0)	27 (8.1)	14 (4.2)
Learn without being in the same room as the instructor	41 (12.3)	62 (18.7)	85 (25.6)	93 (28.0)	31 (9.3)	20 (6.0)
Learn without being in the same room as other student	49 (14.8)	58 (17.5)	83 (25.0)	75 (22.6)	38 (11.4)	29 (8.7)
Search the internet to find the answer to a course related question	78 (23.5)	70 (21.1)	79 (23.8)	62 (18.7)	20 (6.0)	23 (6.9)
Search the online course materials	76 (22.9)	80 (24.1)	97 (29.2)	44 (13.3)	19 (5.7)	16 (4.8)
Communicate using online platform (such as discussion boards, email etc)	53 (16.0)	54 (16.3)	78 (23.5)	85 (25.6)	38 (11.4)	24 (7.2)
Meet deadlines of assignments using very few reminders	47 (14.2)	72 (21.7)	100 (30.1)	70 (21.1)	24 (7.2)	19 (5.7)
Complete a group project entirely on time	65 (19.6)	66 (19.9)	78 (23.5)	67 (20.2)	30 (9.0)	26 (7.8)
Use of online platform to communicate with others (such as zoom, google meet or whatsapp)	82 (24.7)	70 (21.1)	78 (23.5)	70 (21.1)	17 (5.1)	15 (4.5)
Focus on college work when faced with distractions	63 (19.0)	64 (19.3)	77 (23.2)	73 (22.0)	24 (7.2)	31 (9.3)
Develop and follow a plan for completing all required work on time	60 (18.1)	75 (22.6)	81 (24.4)	67 (20.2)	31 (9.3)	18 (5.4)
Use library's online resources efficiently	53 (16.0)	43 (13.0)	64 (19.3)	71 (21.4)	37 (11.1)	64 (19.3)
When a problem arises, promptly asking query through online platform (such as e-mail, whatsapp, zoom/google meet etc)	66 (19.9)	68 (20.5)	79 (23.8)	62 (18.7)	28 (8.4)	29 (8.7)

Table 4 explains domain-wise and overall self-efficacy of online learning among participants. Mean scores of learning, technical, time management sub-domains and

overall online learning self-efficacy was found to be 38.58 ± 11.32 , 27.68 ± 7.47 , 20.10 ± 6.02 , and 86.36 ± 24.06 respectively. It was seen that, in all of the sub-domains of

online learning, majority of participants had poor self-efficacy. Only 23.2% of the participants had overall good online learning self-efficacy.

Table 5 shows that there is a statistically significant association between overall online learning self-efficacy

scores with the type of course (p=0.045), views regarding continuation of online classes during the pandemic (p=0.001) and level of satisfaction from online classes (p=0.001).

Table 4: Table 4: Domain-wise and overall self-efficacy of online learning among participants (n=332).

Table 4: Domain-wise and overall self-efficacy of online learning among participants (n=332)				
Online learning self-efficacy				
	Mean±SD (Range)	Good	Poor	
	_	Frequency (%)		
Learning (<u>></u> 80% score)	38.58±11.32 (10-60)	75 (22.6)	257 (77.4)	
Technical (<u>></u> 80% score)	27.68±7.47 (7-42)	79 (23.8)	253 (76.2)	
Time (<u>></u> 80% score)	20.10±6.02 (5-30)	99 (29.8)	233 (70.2)	
Overall Online learning self-efficacy (>80%	86.36±24.06 (22-	77 (23.2)	255 (76.8)	
score)	132)	11 (23.2)		

Table 5: association between selected variables and overall online learning self-efficacy.

	Overall online learning self-efficacy		Chi-square value	P value	
	Good	Poor	varue		
Gender					
Male	15	46	0.082	0.775	
Female	62	209	0.082		
Type of Residence					
Rural	43	159	1.052	0.305	
Urban	34	96			
Marital status					
Married	9	28	0.030	0.863	
Unmarried	68	227			
Type of family					
Joint	40	130	0.022	0.882	
Nuclear	37	125			
Course					
GNM	18	70	8.034	0.045*	
P. B. B.Sc (N)	6	10			
B. Sc (N)	44	164			
M. Sc (N)	9	11			
Family income					
Rs. <10,000	27	106	2.821	0.420	
Rs. 10,000-40,000	33	101			
Rs. 40,000-1,20,000	10	36			
Above Rs. 1,20,2000	7	12			
Ever received online class before COVID-19					
Yes	43	115	2.738	0.098	
No	34	140			
Type of gadget used for attending online class					
Mobile	63	215	0.368	0.832	
Computer/ laptop	1	2			
Both	13	38			

Continued.

	Overall online learning self-efficacy		Chi-square value	P value
	Good	Poor	value	
Type of internet connection				
Cellular/Mobile	53	184	1.683	0.431
Wifi	4	6		
Cellular/wifi/ both	20	65		
Should online learning be continued during this p	andemic?			
Yes	75	208	11.786	0.001*
No	75	208		
Perceived level of satisfaction from online classes	2	47		
Satisfied	15	12	38.210	0.001*
Satisfied	45	97		
Neutral	12	74		
Unsatisfied	5	59		
Strongly unsatisfied	0	13		
*Significant p<0.05				

DISCUSSION

The present study was conducted with the purpose of finding out the self-efficacy of nursing students with regard to online learning. The COVID-19 pandemic has hit the country, and educational system even worse. Due to the containment measures being taken by the Indian Government, substitution of traditional face to face education with the online classes was the only option left for all the nursing institutes for ensuring the continuity of nursing education. In our study, it was found that more than half of the participants had no exposure to online education before the outbreak of COVID-19 pandemic. This raises significant apprehensions about their skills to successfully accomplish the tasks associated with digital learning. Therefore, the study was formulated to assess the self-efficacy of online learning among nursing students.

Majority of the students in our study were from rural area and it was found that more than 80% of them had access to internet facility at their home and were using smart mobile phones for attending online classes through zoom platform, indicating that smart mobile phones are popular mode of attending online classes. Similar findings were reported by several other studies.^{9,10}

This study revealed that nearly half (50.9%) of the participants were satisfied with the online classes which is line with the findings of study conducted by Dipti Koirala et al in which two third of the respondents (63.2%) were satisfied with the conduction of online classes. ¹⁰ Sharma et al also highlighted that (53.5%) students were satisfied. ¹¹ And, only 16.8% (n=73) were dissatisfied with the online classes. Present study suggests that majority (85.2%) of the students supports conduction of online classes during this pandemic situation, which is similar to the findings of a study conducted by Dost et al who reported that students find online learning more advantageous as it helps them in studying at their own pace, reduces anxiety and allows preparation for clinical placements. ¹² Panda et al in his

study reported that internet speed and technical issues were major barriers, whereas flexibility, availability of content for revision and fewer distractions were the positive features of online learning.¹³

The current study highlighted that more than three-fourth (76.8%) of the nursing students had poor online learning self-efficacy scores in all the domains. Additionally, scores were also poor for majority of the participants in learning, technical and time management aspects.

Findings of our study are intriguing for the entire nursing fraternity including all those who are involved in framing and delivering the educational course to the students. It goes without saying that students should possess good selfefficacy for traversing the tasks associated with online learning, and it is a pre-requisite for the successful conduction of digital classes. Our study discovered significant lack in the level of self-efficacy of nursing students pertaining to online education; indicating the need for introducing specific training modules and demonstration classes. This will enable the students to achieve mastery in the tasks associated with e-learning such as submitting the assignments through email, asking queries, connecting to the online platforms etc. Furthermore, studies should be conducted to evaluate various barriers and determinants associated with online learning self-efficacy among nursing students and the effect of poor online learning self-efficacy over the academic performance of students. Some of the strengths of our study include use of standardized questionnaire and adequate sample size, also this is the first study that evaluates the level of self-efficacy of nursing students related to online education.

Limitations

Cross-sectional design and self-reported tool limits the generalizability of findings.

CONCLUSION

The study revealed higher level of satisfaction of participants with online classes, though they were satisfied, but majority demonstrated poor self-efficacy, perhaps due to first time exposure with this novel method of teaching and learning. Therefore, specific training modules should be designed by the faculty and teaching institutions to train the students in navigating the online courses effectively.

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