

A Cross Sectional Study “Impact of Corona Virus Pandemic on Nursing Education: A Paradigm Shifting or Sustaining the Roots?”

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Abstract

Background: COVID 19 outbreak miens critical concern to global education system across the world. The closure of universities has left billions of students behind. Nursing educators and students relied on technology to continue learning online during the pandemic. However, online education is hampered by the lack of networks, power, infrastructure such as inaccessible and lack of digital skills.

Aim: The aim of the study was to evaluate the impact of the COVID 19 outbreak on nursing education.

Objectives:

1. To assess the perception regarding impact of corona pandemic on nursing education, limitations of E-learning and required modifications among nursing educators.
2. To find out the association between perception of nursing educators with their socio-demographic variables.

Material and Methods: Quantitative Cross sectional research design was adopted with Non probability technique(Convenient sampling) .Data were collected through a Google form consisting of self-structured Likert scale on perceptions of nursing educators. The Subdomains of the perception were impact of COVID-19 outbreak on Nursing education, Limitations of e-learning and essential modifications required.

Result: of the study revealed that the corona pandemic outbreak has adversely impacted nursing education and urgent need to implement effective e-learning teaching learning strategies of nursing educators to understand their perception and issues they are facing during e- classes to foster teaching-learning.The mean and SD of (7.9 + 3.9) shows negative impact of COVID pandemic on nursing education and are of limitations in E-learning methods with a mean and SD score of (6.2 + 2.4).

Conclusion: The process of imparting education has seen a sea change during the threat of the COVID pandemic. Besides, technology is affecting every side of society and changing it regularly. Challenges in the E-learning context shows the requirement for up-gradation in institutional technology infrastructure and teacher’s capacity building training to improve technological expertise.

Keywords: COVID 19; Nursing Education; E-learning; Perception; Limitations; Educators

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Introduction

The COVID -19 outbreak has threatened to aggravate educational results without proactive interventions. The virus epidemic worldwide has burdened learner’s immediate learning need and health

costs too. In relation to the clinical setting the nursing education is precisely designed with minute details of theory and clinical teaching learning in terms of credits and define hours. Corona deadlock has moved the system to online platform. The efficacy of using online platform or e learning methods brought few challenges for nursing educators. The professional competence of nursing skills through e learning mode raised questions unanswered. Initially nursing educators also excited to adapt the change and to shift on virtual platform. Then they initiated to face lots of limitations and challenges as they progressed. This move has raised the questions over the teacher to show their capability to cope with technology.

E-learning involved learning delivery along with technology that provided a range of instructional plans and formats. E-learning often knew with added words such as ‘internet-based learning,’ ‘online learning,’ ‘computer-assisted learning,’ and ‘web-based learning.’¹ The faculty of nursing needs to have skills that are distinct from the requirements of e-learning, especially when it comes to pandemics. Review of literature do not support the studies representing impact on nursing education or None of article on education revealed the influence on perception of nursing educators towards corona pandemic. The present study was undertaken with a aim

to find out the perception of educators towards COVID -19 outbreak as it is pivotal to identify how e-learning support nursing .education at time of pandemic and social distancing.

Research question

1. What is the perception regarding impact of corona pandemic on nursing education, limitations of E-learning and required modifications among nursing educators?
2. Is there any association between perception regarding impact of corona pandemic on nursing education, limitations of E-learning and required modifications among nursing educators with their socio-demographic variables?

Objectives of the study are

- 1) To assess the perception regarding impact of corona pandemic on nursing education, limitations of E-learning and required modifications among nursing educators.
- 2) To find out the association between perception of nursing educators with their socio-demographic variables.

Methodology

Research Design	Cross sectional research design
Setting	Nursing Institutions, across India
Ethical Permission	Manikaka Topiwala Institute of Nursing, Gujarat, India
Sampling techniques	Nonprobability technique (Convenient sampling)
Sample size	386 nursing faculties
Variables	1) Socio-demographic variables 2) Nursing educator’s perceptions regarding impact of corona pandemic on nursing education, limitations of E-learning and required modifications.

Cont...

Explanation of the tools	
Tool 1: Socio-demographic profile	
It consists of personal information of nursing educators i.e. gender, age, qualification (in nursing), designation, type of working institution, teaching experience, previous experience of E-teaching and whether they have taken E-classes during lockdown.	
Tool 2: Likert scale on Nursing educator’s Perception regarding impact of corona pandemic on nursing education, limitations of E-learning & required modifications.	
This likert scale about nursing educator’s perceptions is consisted of 15 items which is further divided into 5 domains.	
<ol style="list-style-type: none"> 1) Domain of perception of nursing educators regarding impact of corona pandemic on nursing education (4 items) <ul style="list-style-type: none"> · Each item score ranges from 1 to 5, where 1 refers to strongly agree, 2 refers to agree, 3 refers to neutral, 4 refers to disagree and 5 refers to strongly disagree. · Total score ranges from 4 to 20. · Score 12 refers to overall neutral response. · Lesser the score, more is the adverse impact of corona pandemic on nursing education 2) Domain of perception of nursing educators regarding limitations of E-learning (3 items) <ul style="list-style-type: none"> · Each item score ranges from 1 to 5, where 1 refers to strongly agree, 2 refers to agree , 3 refers to neutral, 4 refers to disagree and 5 refers to strongly disagree. · Total score ranges from 3 to 15. · Score 9 refers to overall neutral response. · Lesser the score, more are the limitations of E learning. 3) Domain of nursing educator’s perceptions towards required modifications (5 items) <ul style="list-style-type: none"> · It contains 5 items. · Each item score ranges from 1 to 5, where 1 refers to strongly agree, 2 refers to agree , 3 refers to neutral, 4 refers to disagree and 5 refers to strongly disagree. · Total score ranges from 5 to 25. · Score 15 refers to overall neutral response. · Lesser the score, more is the agreement of nursing educators towards required modifications mentioned in items. 4) Domain of nursing educator’s perceptions towards importance of required modifications (2 items) <ul style="list-style-type: none"> · Each item score ranges from 1 to 5, where 1 refers to very important, 2 refers to important, 3 refers to moderately important, 4 refers of little importance and 5 refers to unimportant. 5) Domain of nursing educator’s perceptions towards potential of required modifications (1 item) <ul style="list-style-type: none"> · Each item score ranges from 1 to 5, where 1 refers to definitely, 2 very probably , 3 refers to possibly, 4 refers probably not and 5 refers to very probably not. 	
Statistics	Descriptive statistics: mean, median, SD, frequency distribution Inferential statistics: Association

Results

Findings related to Socio demographic Data of nurse educators:

As per socio-demographic details, findings revealed

that 73.1% nursing educators were females. 51% of the nursing educators belonged to (31-40) years of age group and 59.1% were post-graduates. Most of the nursing educators (46.6%) were working as clinical instructors/ Nursing tutors and 60.1% were serving under private institutions. A total of 39.6% nursing educators were

having teaching experience of less than 4 years and 50.3% were having previous E- teaching experience. Most of the nursing educators (73.3%) have taken E-classes during lockdown because of COVID-19 pandemic.

Findings Related to perceptions regarding impact of corona pandemic

The nursing educators showed fair agreement that COVID-19 pandemic has negative impact on nursing education with a mean and SD of (7.9 + 3.9). Data also showed that there are limitations in E-learning methods with a mean and SD score of (6.2 + 2.4) and findings of the study also suggested that nursing educators agreed with the mentioned modifications to improve the status of nursing education during these pandemic situations with a mean value of (9.6 + 3.6).

Figure 1 represents findings revealed degree of agreement shown by nursing educators regarding impact of corona pandemic on nursing education and limitations of E-learning. Most of the nursing educators strongly agreed and agreed that corona pandemic has very adversely impacted nursing education and teaching through E-learning methods has lot of limitations.

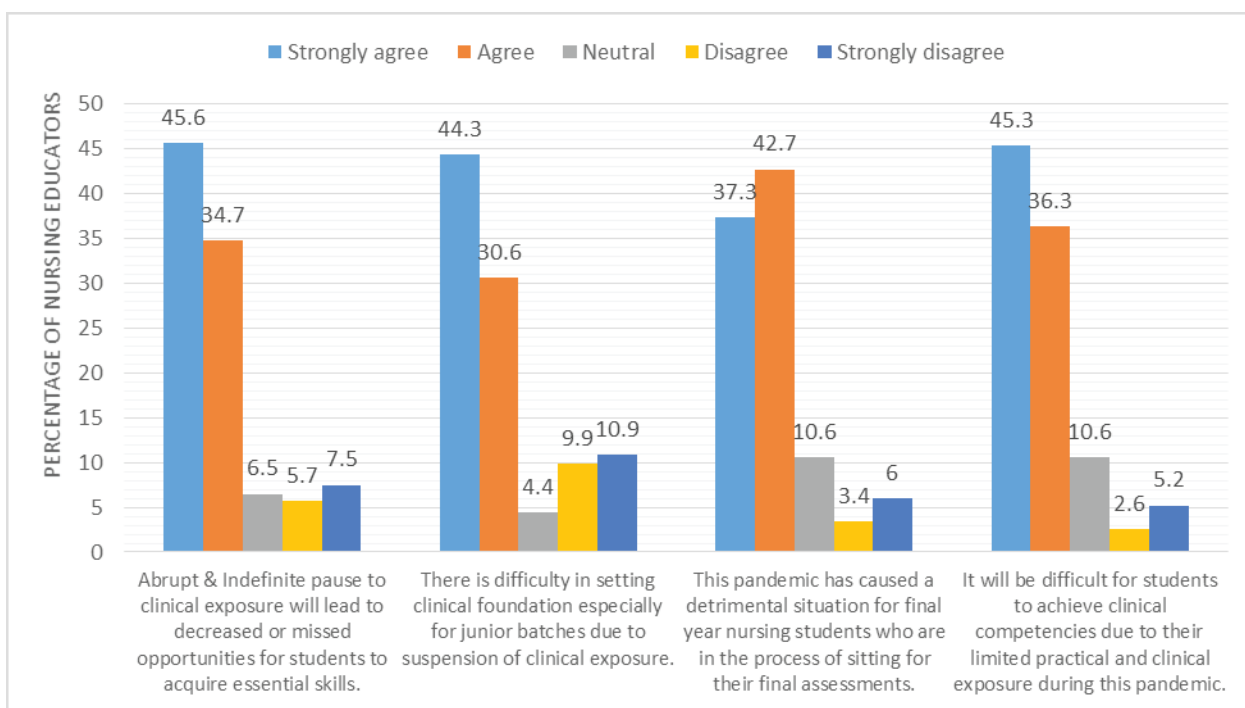


Figure 1 represents the Nursing educator’s perceptions towards impact of corona pandemic on nursing education

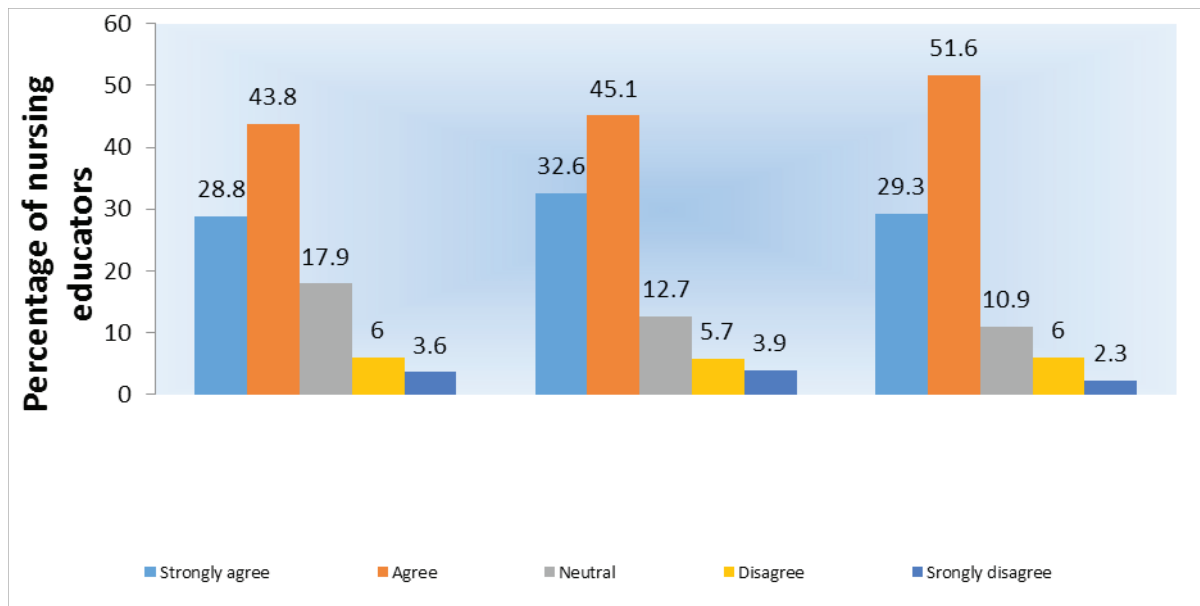


Figure 2 represents the Nursing educator’s perceptions towards limitations of E –learning n =386

Figure 2 represents the findings revealed degree of agreement shown by nursing educators regarding impact of corona pandemic on nursing education and limitations of E-learning. Most of the nursing educators strongly agreed and agreed that corona pandemic has very adversely impacted nursing education and teaching through E-learning methods has lot of limitations.

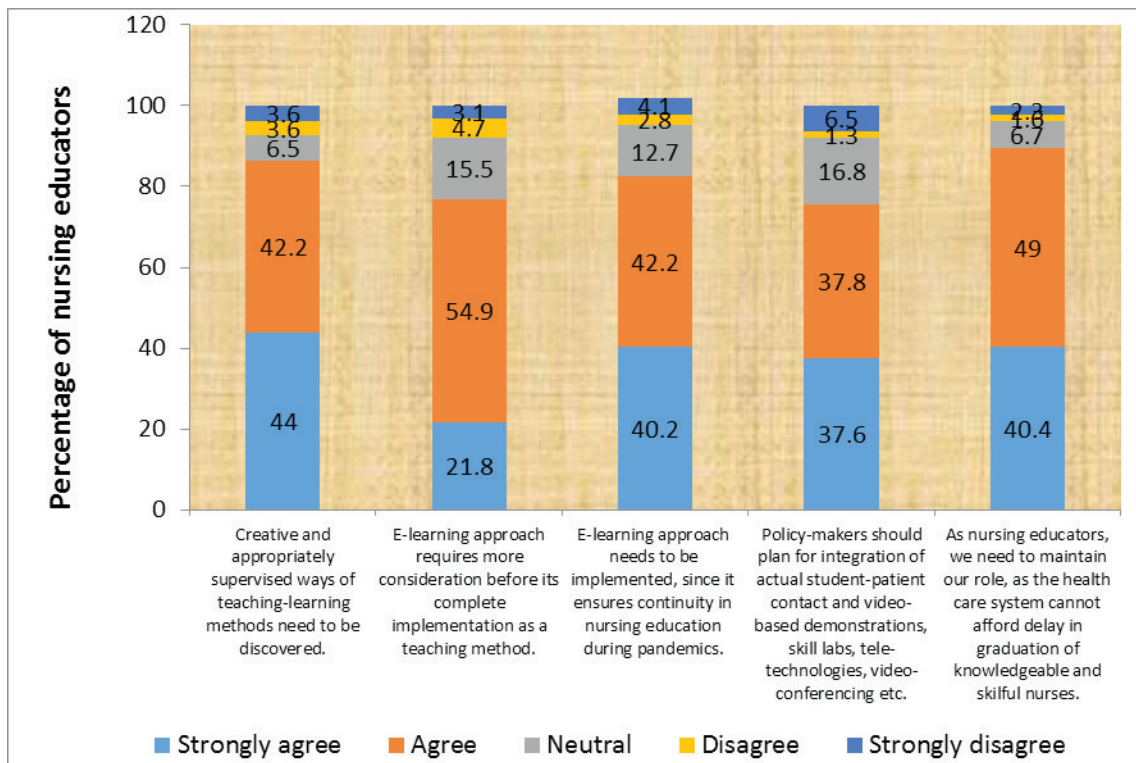


Figure 3 represents the Nursing educator’s perceptions towards required modifications.

Figure 3 and 4 represents perceptions of nursing educators towards required modifications, its importance & potential in nursing education to deal with these pandemics. Findings revealed that most of the nursing educators agreed for the necessity of modifications and think that these modifications are important to carry out and have great potential to bring positive changes in nursing education.

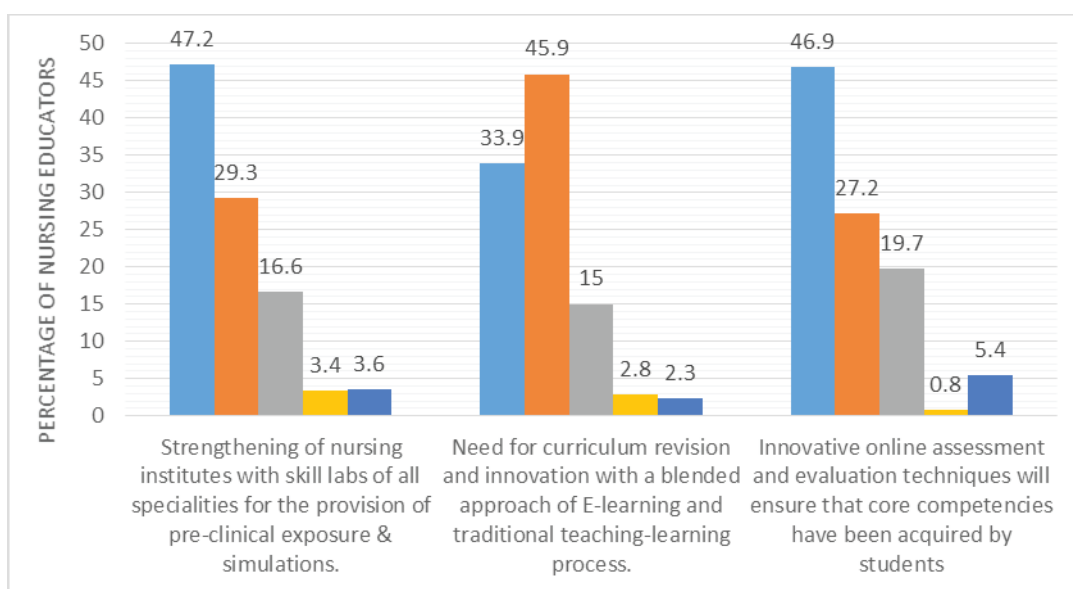


Figure 4 represents the Nursing educator’s perceptions towards importance and potential of required modifications

Finding Related to Association

Table 1 and Table 2 represents the association of nursing educator’s perceptions regarding impact of corona pandemic on nursing education, limitations of E-learning and required modifications with selected variables and data in Table 5a revealed that nursing educators who were females, working in government institutions, with previous experience of E-teaching and have taken E- classes during lock-down showed better agreement of adverse impact of corona pandemic on nursing education with a statistically significant p-value of 0.03, 0.003, 0.01, 0.0001 respectively. Nursing educator’s agreement towards limitations of E-learning was not found to be significantly associated with any of the variables. Nursing educators who have taken E-classes during lockdown were having statistically significant better agreement towards mentioned modifications to improve nursing education during the pandemic situations.

Table 1 represents the association of nursing educator’s perceptions regarding impact of corona pandemic on nursing education, limitations of E-learning and required modifications with selected variables. n= 386

Impact of corona pandemic on nursing education		Mean + SD	Mean diff (95% CI)	t-value	p-value
Gender	Female	7.7 + 3.8	-0.96 (-0.8 to -1.8)	2.14	0.03*
	Male	8.6 + 4.0			
Type of working Institution	Private	8.4 + 4.3	1.2 (2.0 to 0.42)	3.0	0.003*
	Government	7.2 + 3.0			
Previous experience of E-teaching	Yes	7.7 + 3.4	-0.93 (- 0.15 to -1.7)	2.3	0.01*
	No	8.3 + 4.2			
Taken E-classes during lockdown	Yes	7.3 + 3.4	-2.0 (-1.1 to – 2.8)	4.6	0.0001*
	No	9.4 + 4.7			
Limitations of E-learning					
Gender	Female	6.2 + 2.6	0.38(0.9 to -0.16)	0.013	0.16
	Male	5.9 + 1.8			
Type of working Institution	Private	6.3 + 2.6	0.44 (0.93 to -0.05)	1.75	0.07
	Government	5.8 + 2.0			

Cont... Table 1 represents the association of nursing educator's perceptions regarding impact of corona pandemic on nursing education, limitations of E-learning and required modifications with selected variables. n= 386

Previous experience of E-teaching	Yes	6.12 + 2.4	-0.07 (0.4 to -0.56)	0.3	0.76
	No	6.19 + 2.4			
Taken E-classes during lockdown	Yes	6.1 + 2.2	-0.10 (0.44 to -0.65)	0.37	0.7
	No	6.2 + 2.7			
Required modifications					
Gender	Female	9.5 + 3.7	-0.54(0.27 to -1.3)	0.62	0.19
	Male	10.0 + 3.4			
Type of working Institution	Private	9.7 + 4.1	0.43(1.1 to -0.3)	1.16	0.27
	Government	9.3 + 2.7			
Previous experience of E-teaching	Yes	9.2 + 3.3	-0.66 (0.60 to -1.3)	1.8	0.07
	No	9.9 + 3.9			
Taken E-classes during lockdown	Yes	9.0 + 3.0	-2.2 (-1.4 to -3.0)	5.6	0.0001*
	No	11.2 + 4.4			
Independent t test* p-value<0.05					

Table 2 revealed that impact of corona pandemic on nursing education was significantly associated with age, designation and teaching experience with a p-value of 0.0001, 0.0001 and 0.0001 respectively. Data represents that nursing educators in age group of 21-30 years, working as professors and with teaching experience between 0 to 4 years were having better agreement of adverse impact of corona pandemic on nursing education. Limitations of E-learning was also found to be significantly associated with age, designation and teaching experience with a p-value of 0.001, 0.0001 and 0.0001 respectively. Nursing educators whose age group is 50 years and above, working as professors and

with teaching experience between 0 to 4 years agreed the most, towards limited scope of E-learning. Requirement of modifications was found to be significantly associated with age, qualification, designation and teaching experience with a p-value of 0.0001, 0.007, 0.02 and 0.0001 respectively. Nursing educators whose age group is 50 years and above, done doctorate or pursuing doctorate, working as professors and with teaching experience between 0 to 4 years agreed the most, towards requirement of modifications in current teaching-learning methods to deal with these pandemics as far as nursing education is concerned.

Table 2 represents the association of nursing educator's perceptions regarding impact of corona pandemic on nursing education, limitations of E-learning and required modifications with selected variables. n= 386

Impact of corona pandemic on nursing education		Mean + SD	F-value	p-value
Age	21-30	7.2 + 3.2	8.63	0.0001*
	31-40	7.8 + 3.5		
	41-50	11.0 + 5.9		
	50 years and above	10.0 + 7.9		
Qualification	Graduate	8.4 + 4.4	1.01	0.3
	Post-Graduate	7.74 + 3.6		
	Doctorate (Including Pursuing Scholars)	7.78 + 4.0		

Cont... Table 2 represents the association of nursing educator’s perceptions regarding impact of corona pandemic on nursing education, limitations of E-learning and required modifications with selected variables. n= 386

Designation	Clinical Instructor/ Nursing Tutor	7.77 + 3.5	6.54	0.0001*
	Lecturer	8.1 + 4.2		
	Professor	7.1 + 3.4		
	Principal/ Administrator	11.5 + 5.5		
Teaching Experience (In years)	0-4 years	6.9 + 2.5	11.71	0.0001*
	5-9 years	8.4 + 4.1		
	10-14 years	7.2 + 4.1		
	15 years and more	10.7 + 5.4		
Limitations of E-learning				
Age	21-30	6.0 + 2.2	5.66	0.001*
	31-40	6.1 + 2.2		
	41-50	7.7 + 3.7		
	50 years and above	4.6 + 2.6		
Qualification	Graduate	6.17 + 2.7	0.09	0.9
	Post-Graduate	6.18 + 2.1		
	Doctorate (Including Pursuing Scholars)	6.03 + 2.8		
Designation	Clinical Instructor/ Nursing Tutor	5.9 + 2.2	7.29	0.0001*
	Lecturer	6.3 + 2.5		
	Professor	5.8 + 2.2		
	Principal/ Administrator	8.5 + 3.0		
Teaching Experience (In years)	0-4 years	5.5 + 1.4	7.82	0.0001*
	5-9 years	6.48 + 2.6		
	10-14 years	6.40 + 3.1		
	15 years and more	7.2 + 2.8		
Required modifications				
Age	21-30	9.2 + 4.1	9.1	0.0001*
	31-40	9.5 + 2.7		
	41-50	12.9 + 4.7		
	50 years and above	7.8 + 2.0		
Qualification	Graduate	10.5 + 4.9	5.01	0.007*
	Post-Graduate	9.4 + 3.1		
	Doctorate (Including Pursuing Scholars)	8.8 + 2.4		
Designation	Clinical Instructor/ Nursing Tutor	9.9 + 3.9	3.32	0.02*
	Lecturer	9.8 + 3.7		
	Professor	8.5 + 2.6		
	Principal/ Administrator	10.0 + 2.9		
Teaching Experience (In years)	0-4 years	8.5 + 2.6	9.50	0.0001*
	5-9 years	10.6 + 4.0		
	10-14 years	9.1 + 4.5		
	15 years and more	10.6 + 3.0		
ANOVA * p-value<0.05				

E-classes during lockdown was significantly associated with qualification, designation, type of working institution, and teaching experience with a p-value of 0.0001, 0.0001, 0.0001 and 0.0001 respectively. Data revealed that 92.1% of nursing educators with doctorate degree, 100% of nursing educators who are working as principal/administrator, 85% of educators serving in government institutions and 95.9% of educators already experienced with E-teaching have taken classes during lockdown period of COVID-19 pandemic.

Discussion

This study aimed to assess the impact of COVID-19 pandemic on nursing education and investigating the perception of nursing educators for e-learning and to inquire factors comprise nursing educators' efficacy and measures of quality of e-learning during the COVID-19 pandemic environment. The body of evidence supporting the urgent need to implement effective e-learning teaching strategies with several of collaborative activities such as knowing experiences of nursing educators to understand their perception and issues they are facing during e-classes to foster teaching, student's satisfaction, and achievement of educational outcomes.

Majority of study participants were young, having less than 5 years' experience. More than half of study participants were responded from private nursing institutions. Almost two by third nursing faculty were taking e-classes during pandemic. About the existing nursing curriculum, absolute practices of clinical competencies are among the prime concern for learners to achieve routine hospital practical experiences during clinical hours as it assures to prepare clinical efficient workforce³. 43.8% study participants reported to get it difficult to provide actual clinical experience to their students with e-learning as teaching method. Hence, it's required to keep the most practical and reliable skills through technology as such a simulation technique can useful for students to impart professional and factual clinical learning.

Even though all efforts are being taken by nursing institutions and raising the use of information technology in nursing education, the efficacy of utilizing e-teaching methods in clinical learning is imprecise.⁴

Half of the study participants (54.9) were in favor of strategic planning before its implementation as of teaching, learning method in nursing to get maximum results. Studies also supported the prime factors in preparing nursing curriculum program should be making learning simple, efficient and future of technology ready^{2,5}

Another notable concern of nursing educator's participant was clinical exposure of junior batches nursing students due to lockdown constraints and COVID-19 pandemic, clinical posting was suspended for an undecided time. In contrast with other similar studies junior batch nursing students, mainly in initial semesters, are in the early phase of psychomotor, clinical critical thinking skills. Hence, attending complete e-learning based clinical practices, the skills lab may not as useful.⁶

Nursing is a practice-led profession and leadership skills promote nursing students to improve the quality of care along with direct participation in clinical care.⁷ Almost half of the study participants agreed to the statement that leadership quality, teamwork, and group discussion may be affected in the absence of face to face classroom teaching where students work together with a common goal.

Previous research work also reported that knowledge adherence and consistency was higher in traditional classroom teaching as compared to e-learning.⁸⁻¹⁰ Furthermore Lathi *et al.* (2014)¹¹ did not find statistically significant differences among e-learning and traditional classroom learning groups concerning knowledge, skill, and satisfaction of nursing students. In our study, 45.3% of participants were accepting that this will be difficult for nursing students to achieve proficiency in clinical practices due to the termination of regular hospital visits in the wake of the COVID-19 pandemic.

Another observation during the study was found that 43.8% of participants were affirmation that nursing student's skills to make clinical diagnosis would suffer in the absence of regular clinical practices. Accordingly similar study, since its beginning, nursing is a purely practice-based discipline and clinical education is the basis of the nursing education program. Besides, the available literature, nursing students are spending almost 50% of their curriculum hours during their clinical practices.^{10,12} Lack of clinical competency can threaten

patient care and safety.¹³

Since the beginning of lockdown, nursing faculties are put up with the high expectation to use e- technologies with full expertise with little or no formal computer training. More than half of our study participants agreed to the requirement of advanced planning before implementing e-learning. Vary from many researchers' views by being either nursing clinical practitioners or educators the teacher's perception with use of information technology for education purposes likely influenced by their previous exposure.¹⁴ High quality of technical support and facilities can boost opportunities for e-learning in nursing education . Here almost half of participants have had not been part of any e-learning teaching exposers before the pandemic. During the COVID -19 pandemic crisis, well-planned e-learning programmes for nursing students can support in maintaining the development of nursing students' skills and knowledge. It is suggested to support further shreds of evidence related to the perception of nursing educator about e-learning for enhancing nursing learning, improved clinical skills and heightened learner satisfaction among nursing students.

Conclusion

As technology advances and training pressures rise, e-learning is an economical, innovative and reputable platform for program directors to incorporate into their curricula.

The effectiveness of e-learning in nursing education remains unknown regarding how the learning can be transferred to change practice and affect patient outcomes. However different and well planned e-learning programmes can support the skills and educational development of nursing students. It is suggested to include training of nursing faculties for handling technical devices and including computer literacy in nursing curriculum

Recommendations

- Nursing academics in present and future will be left with, no choice but to prepare nursing students technology ready.
- The COVID pandemic imposed lockdown left with no choice for educators but to go with the use of technology in nursing teaching, learning.

This created an immediate need to prepare a technologically competent workforce.

- Nursing faculty progress in technology fluency is crucial and needs to be continuing with a focus for nursing institutions and administrators to enhance student learning and retain faculty by providing training to handle technical aspects.
- Where most nursing institutions are already facing a shortage of teaching faculty. Mastering competency in e- technology and planning e-courses is a further burden, on already occupied nursing faculty and could push forward the departure of extremely qualified nursing faculties from nursing institutions, thus worsening the already existing nursing shortage
- Developing or developed in every country, the paucity of training is quoted as an important issue of shortage of nurses due to inadequate nursing institutions and faculty globally.
- COVID-19 Pandemic is a health emergency worldwide and that can outcome in severe disruption of health and social infrastructure. Nurses are playing a crucial part as members of the response team in the century's biggest health crisis. During such never seen situation keeping nurse's institution working and continuity in nursing education is the great service nursing faculties are doing by accepting the challenge of e-learning
- COVID-19 Pandemic is a health emergency worldwide and that can outcome in severe disruption of health and social infrastructure. Nurses are playing a crucial part as members of the response team in the century's biggest health crisis. During such never seen situation keeping nurse's institution working and continuity in nursing education is the great service nursing faculties are doing by accepting the challenge of e-learning.

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