

Effectiveness of Digital Learning in Community Mental Health Care Among Nurses in India

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Abstract

Background: Digital learning is a cost-effective and time-saving approach in higher education. The present study aimed to check the impact of continuing nursing education programs through digital learning by connecting Indian nurses to NIMHANS Digital Academy (NDA). **Materials and Methods:** One group pre-test and post-test design was used for this study. Overall, 217 nurses registered for the course and 146 nurses were recruited on the basis of eligibility and their Expression of Interest (EoI) through the online registration portal. All the nurses who had access to the internet and enough internet literacy were included in the study. 64 nurses had not submitted the post-test due to various reasons within the stipulated time. Hence, the final sample achieved and calculated for the analysis was $n = 82$. The data for this study were collected through the retrospective chart review method. **Result:** The findings of this study reveal that most of the nurses in India had willingness and readiness for digital learning. All the nurses who joined the NDA learning program stated that they would like to improve their knowledge regarding mental health and illness, to identify and manage mentally ill patients efficiently. The results indicated that the training provided through NDA positively impacted the nurses' knowledge and fulfilled their learning needs. Statistical analysis showed a significant difference between knowledge, practice, and confidence score changes for the two-time point period, i.e. before and after the training. **Conclusion:** It can be concluded that conducting Continuing Nursing Education (CNE) through a digital learning program is an effective teaching-learning method in the nursing curriculum.

Keywords: Community mental health care, digital learning, nurses

INTRODUCTION

The Indian government started to implement the digital India concept to develop our nation. Distance education is an important model in education since twenty-first century.^[1] Continuing nursing education is an essential educational intervention to improve the nursing professional's knowledge, practice, and confidence in nursing care. It is understood that the digital learning is a more cost-effective and time-saving approach in higher education.^[2,3] "Online education programs have been shown to be as effective as in-person instruction to improve the attitude, knowledge and evidence-based practice (EBP) among healthcare practitioners."^[4]

"The current healthcare landscape is one in which training healthcare professionals are rapidly being supplemented or replaced with digital learning options using web-based technologies. Digital learning is now seen as an integral method of learning for many health professionals."^[5]

It is understood that patient's compliance with treatment, follow-up, and medication adherence is relying on the healthcare professional's interaction with the patients and family members. The healthcare professionals' knowledge and attitude will influence the patient's involvement in the self-management of chronic illnesses like mental illness.^[6]

"Historically, "self-management support" was initially defined as educational and supportive interventions provided by health professionals to systematically help chronically ill patients best meet their physical, social and emotional needs in long-term self-care management."^[7]

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Effective training and education will enhance the health professionals' communication skills, nursing practice in identifying new mentally ill patients with their problems and management of the symptoms and side effects of medications, so that nurses can provide continuous support to the chronically ill patients. Further, it improves the nurses' skills in collaborating with other multi-disciplinary professionals to face challenges and utilize opportunities appropriately.^[8]

Prior research has found that nurses are having low confidence in managing mentally ill patients because of their inadequate knowledge; hence, their subsequent practice was not in active process and up to the mark.^[6] Hence, the present researchers tried to train the nurses through the digital training program from the National Institute of Mental Health and Neuro Sciences, Bengaluru.

OBJECTIVES OF THE STUDY

To assess the impact of digital training on nurses' knowledge on mental health and illness, nursing care practice, and overall confidence in diagnosing, and managing the mentally ill patients and confidence in managing the side effects of antipsychotics and antidepressants.

MATERIALS AND METHOD

Study design and setting

An one group pre-test and post-test design was adopted for this study. The study was conducted at a tertiary care institute (National Institute of Mental Health and Neuro Sciences-NIMHANS Digital Academy Hub). As per the objective of the National Mental Health Program (NMHP), NDA tried to introduce the integration of the mental health into the general health system by educating the healthcare professionals to improve the early diagnosis of mental illness and to enhance the mental healthcare practice at healthcare settings and community.

Study participants and sampling procedure

Based on the advertisement through NIMHANS website, nurses who have registered for the online course from various institutions across India were included for the study. The participants enrolled in the study were requested to complete the "pre-test," "a course of the digital learning module," and "post-test." The participants were asked to use devices including smartphones, computers, and laptops to get access to the complete module activities. The participants were selected from all over India. Totally, 217 nurses registered for the course out of them, 146 nurses were recruited on the basis of eligibility and their Expression of Interest (EoI) through online registration portal. Nurses who completed minimum qualification of Diploma in Nursing and above, who have registered under the respective State Nursing Council and further, who have access to the internet and enough internet literacy were included in the study. Those who did not upload the Aadhaar details, photo, their qualification certificate for

the completion of nursing curriculum and Registered Nurse-Registered Midwifery (RNRM) certificate copy were excluded.

Data collection method and techniques

The experts from NDA prepared the learning module on mental health and mental illness combined with videos, assignments, case vignettes, and case studies. The learning module was delivered over 15 hours on pre-fixed days through the digital learning method. After completion of the sessions, participants were allowed to present patients with mental illness, whose care was managed by them. The participants completed the questionnaire about knowledge on mental health and illness, practice assessment in caring for mentally ill patients, confidence in diagnosing, managing the mentally ill patients, and confidence in caring the patients with side effects of antipsychotics, antidepressants, and mood stabilizers. All the data were collected through Google Forms. Participants' phone numbers and mail IDs were collected for easy communication.

"The retrospective chart review (RCR) method was used to collect the data for this study. RCR is known as a medical record review, and it is a type of research design in which pre-recorded, data are used to answer one or more research questions. Similarly, the data used in such reviews exist in many forms such as electronic databases, results from diagnostic tests, and information from patients and health service providers. Wherein the researcher has a backward approach to study a phenomenon."^[9]

Pre-test was conducted in the first week of the program that is prior to start of the online training course, and then post-test was conducted after completion of the online training course that is three months later. All 146 nurses completed the pre-test and digital training program. However, 64 nurses who completed the online training course have not sent the post-test Google Forms within the stipulated time provided to them, that is one week after the completion of online training course. Post-test data which we received after one week were not considered for the analysis to maintain the fidelity on impact of the online training program. Hence the final sample we could achieve for this study was $n = 82$ which is 56% of the overall enrolled participants for the online course, and the same data were included for the analyses to check the effectiveness of the digital learning program.

Tools used to collect data

Research tool used for this study has semistructured self-administered questionnaire in the form of Google Sheet prepared by the NIMHANS Digital Academy Hub for the purpose of digital learning course to the nurses. Section one of the questionnaire is about study subject's personal details which includes mail ID, qualification details, certificate, and Expressed Interest to join the digital learning course and convenient day to attend the course.

Section two has 30 items, multiple-choice questions with options, to assess the participants' knowledge on mental illness and its management. Each correct answers carry a 01 mark,

and the wrong answer carry a 0 mark. The total score ranges from 0 to 30, the higher score, indicated higher knowledge.

Section three has 12 questions which are to assess the nursing care practice in care of mentally ill patients with a 5-point rating scale with the score ranges between 12 and 60. Higher score indicated good nursing practice.

Section four has 14 questions which are to assess the nurses' confidence in diagnosing, managing the mentally ill patients (through 10-point rating scale with score range of 14–140) and higher score indicated high confidence.

Section five has 11 questions, which are to assess the nurses' confidence in managing the side effects of psychotropic medications with 10-point rating scale (with score range of 11–110). Higher score indicated high confidence.

The questionnaire was prepared by the NDA for the online digital learning course and sent for content validation and expert review and accepted by them. This questionnaire was used only to evaluate the effectiveness of the online training course among the nurses who participated in this digital course.

Data analysis: The data were collected, processed, analyzed, and presented using descriptive and inferential statistics through Statistical Package for Social Sciences (SPSS) version 26 (SPSS, IBM Corp., Armonk, NY, USA). To identify the mean score differences of the nurses' knowledge, paired *t*-test was used after the normality check. The Relative Importance Index technique (RII) was used to determine the importance given by the nurses towards nursing care practice in identifying and managing patients with various mental illnesses, confidence in diagnosing the mental illness, managing the patients, and managing side effects of the psychotropic drugs. In RII technique, factors are given importance/ranked based on their relative weight. The weightage of each variable is ranked as per the given importance.^[10] In this study, to calculate RII analysis purpose, the 10-point scales and the subsequent data were re-coded and converted to 3-point scale data. RII was calculated manually with the formula as follows: $RII = \Sigma W / (A * N)$. Wherein, "W" is the weightage given to each response by the respondents ranging from 1 to 5 (1-Never, 2-Rarely, 3-Occasionally, 4-Regularly, 5-Always) for the nursing care practice on care of mentally ill patients-related questionnaire scale. One to three (1-Low, 2-Moderate, 3-High) for confidence in diagnosing and managing the mentally ill patients questionnaire scale and confidence in managing the side effects of medications questionnaire scale. "A" is the highest weightage (i.e., 05 in the nursing care practice scale and 03 in the confidence in diagnosing and managing the mentally ill patients and drug side effect management scale). "N" is the total number of respondents. To identify the RII, initially frequency and percentage were calculated for the data which were obtained before and after the training program and then RIIs were found based on the above-mentioned formula. Higher the value of RII and rank order denotes importance given by the nurses towards nursing care management of

patients with various mental illness conditions, confidence in diagnosis, nursing management, and drug side-effect management.

RESULTS

Nurses' knowledge on mental illness

The present study revealed that majority of the study subjects had a moderate level of knowledge about mental illness prior to the online digital course. Their pre-test mean knowledge score was 22.23 ± 3.90 . However, in the post-test after completion of the digital learning module their mean knowledge score has increased to 26.00 ± 3.03 . While comparing the pre-test and post-test mean knowledge scores through statistical paired *t*-test (6.971), we could find significant difference between two mean scores ($P < 0.001$). [Table 1]. While execute the itemwise analysis of study subject's responses towards knowledge questionnaire, we could identify that the nurses had inadequate knowledge (50–70%) towards pre-natal psychosis, schizophrenia, disability, and rights of person with mentally ill. It seems that less than 50% of the nurses only answered correctly for the following questions such as "what is pre-natal psychosis?," the primary psychopathology in schizophrenia? "what are disability and rights of person with mentally ill?". However, their knowledge has improved in the post-test. For other all the questions study subjects answered fair enough in the pre-test itself while in the post-test they answered 70–80% correctly.

Nursing care practice in care of mentally ill patients

The overall study subjects' mean score of nursing practice towards care of mentally ill patients, prior to online digital course training was 41.96 ± 9.66 . Whereas in post-test, it has increased to 47.34 ± 7.12 [Table 1]. The findings revealed that there is a significant difference found between the pre-test and post-test practice scores obtained by the participants ($t: 4.14$, $P < 0.001$). The majority (41.5%) of the respondents said that they have regularly asked for symptoms of depressive disorder during the pre-test and 45.1% of the respondents always asked regularly about anxiety disorder during the pre-test. While in post-test 58.1% of the respondents said that they have always asked about the harmful effects of continued alcohol abuse and the benefit of quitting alcohol. The Relative Importance Index (RII) and ranking showed that the majority of the respondents have given importance to nursing practice towards counseling about the harmful effects of alcohol abuse and the benefit of quitting alcohol (RII rank 1); further, nurses gave importance to diagnosing and managing the depressive disorders (RII rank 2) in their routine nursing practice [Table 2].

Nurses' confidence in diagnosing and managing the mentally ill patients

The overall study subjects' mean score of confidence towards diagnosing and managing the mentally ill patients, prior to online digital course training was 90.63 ± 27.12 . Whereas in post-test, it has increased to 107.49 ± 16.39 [Table 1].

Table 1: Comparison of mean scores of nurses' knowledge, practice, and confidence in diagnosing and managing mentally ill patients and side effects of psychotropic medications. n=82

Variables	Assessment	Mean Score	Standard Deviation	t	P
Nurses' knowledge on mental illness	Post	26.00	3.03659	6.971	0.001*
	Pre	22.23	3.90323		
Nursing care practice in care of mentally ill patients	Post	47.34	7.12	4.141	0.001*
	Pre	41.96	9.66		
Confidence in diagnosing and managing the mentally ill patients	Post	107.49	16.39	4.638	0.001*
	Pre	90.63	27.12		
Confidence in managing the side effects of psychotropic medications.	Post	90.16	17.34	6.836	0.001*
	Pre	67.52	23.58		

(t) Paired t-test * Significant level at $P < 0.05$

The findings revealed that there is a significant difference found between the pre-test and post-test overall confidence scores in diagnosing and managing the mentally ill patients obtained by the participants ($t 4.64$, $P < 0.001$) [Table 1]. The findings show the majority of respondents said that they had low level to moderate level of confidence in managing most of the disease conditions during the pre-test. But, the majority of the respondents said that they had high confidence in managing the patients with various mental illnesses after the training. Specifically, 87.8% of the respondents said that they had high confidence in providing nursing management for the patients with anxiety, followed by 86.6% of the respondents who had high confidence in managing patients with the depression during post-test. The RII value and rank 1,2,3 showed that most of the study participants expressed their high confidence and importance towards handling the patients with depressive disorders, anxiety, and tobacco addictions through their responses [Table 3].

Nurses' confidence in managing the side effects of psychotropic medications

The study subjects' mean score of confidence in managing the side effects of psychotropic drugs, prior to online digital course training was 67.52 ± 23.58 . Whereas in post-test, it has increased to 90.16 ± 17.34 . The findings reveal that there is a significant difference found between the pre-test and post-test confidence scores in managing the side effects of psychotropic drugs, obtained by the participants ($t 6.84$, $P < 0.001$) [Table 1]. The finding reveals majority 62.2% of the respondents said that they have moderate confidence in drug side effect management for Tricyclic Antidepressants (TCA) and 61.0% said that they have moderate confidence about drug side effect management for alcohol addictions during the pre-test. While in the post-test, the majority 87.8% out of a total of 82 respondents said that they have high confidence in drug side effect management counseling and 78.0% have high confidence about overall psychotropic drug side effect management. The RII rank (1 and 2) shows that the respondents gave more importance to counseling the patients about overall psychotropic drug side effects and its management [Table 4].

DISCUSSION

The healthcare system is currently focusing on mental health issues and their early identification and intervention. One of the objectives of the NMHP is to integrate mental health into general health.^[11] Hence, it is very much important, and all the healthcare professionals need to know about mental health issues-related nursing care management, and the side effects of psychotropic drugs. Every nurse should know about mental illness at the earliest to prevent disability among the patients and community. By looking at the evidence-based research, it is confirmed many healthcare sectors and educational institutions recommended and initiated online programs to educate nurses about various health problems including mental illnesses.^[14] Further, decided to implement the digital portals for many of the healthcare programs and for the general educational avenue. We could identify that there are a number of successful online CNE programs found recently.^[12,13] Based on the review of the literature, objectives of the mental health program and considering the expediency of healthcare professionals, in this study we tried to train the nurses through an online forum to identify the knowledge, practice in nursing care management of patients with mental illnesses, and management of psychotropic drug side effects. Moreover, it is also important to evaluate how graduate students and nurses are involved in community healthcare facilities through digital mode. Based on the analysis and results, we could identify that study subjects are fairly aware of mental illness, and its causes in the pre-test itself. Similar findings were identified by the previous authors among primary care nurses in India. They have identified that the primary care nurses had adequate knowledge of mental illnesses.^[14] However, after the training and learning program through the NDA, their knowledge score had increased. The pre-test mean knowledge score was 22.23 ± 3.90 , and total post-test knowledge mean score was 26.00 ± 3.03 . Similarly, in another study, authors found that the ambulance nurses had satisfactory level of knowledge towards mental illness.^[15] However, in the current study nurses did not know about "what is pre-natal psychosis?", the primary psychopathology in schizophrenia? "what are disability and rights of person with mentally ill?" However, in the post-test they could answer moderately. Still, we identified CNE such as work-shop, conference, and seminar on the particular said disease condition would enhance the nurses' knowledge and

Table 2: Nurses' responses towards practice on nursing diagnosis and management for the patients with selected mental health issues n=82

Variables		Responses						Relative Importance Index			
		Never 1	Rarely 2	Occasionally 3	Regularly 4	Always 5	Pre		Post		
							RII Value	Rank	RII Value	Rank	
Specifically asked for symptoms of depressive disorder	Pre	f	7	5	16	34	20	0.734146	5	0.856097	2
		%	8.5	6.1	19.5	41.5	24.4				
	Post	f	0	1	12	32	37	0.707317	6	0.836585	4
		%	0.0	1.2	14.6	39	45.1				
Specifically asked for symptoms of anxiety disorders	Pre	f	4	7	23	37	11	0.768292	2	0.853658	3
		%	4.9	8.5	28.0	45.1	13.4				
	Post	f	0	0	14	39	29	0.8	1	0.873170	1
		%	0.0	0.0	17.1	47.6	35.4				
Counselled about the harmful effects of continued alcohol abuse	Pre	f	4	7	18	22	31	0.739024	3	0.809756	6
		%	4.9	8.5	22.0	26.8	37.8				
	Post	f	1	6	11	16	48	0.736585	4	0.795121	7
		%	1.2	7.3	13.4	19.5	58.5				
Highlighted the benefit of quitting alcohol	Pre	f	4	3	18	21	36	0.626829	9	0.680487	9
		%	4.9	3.7	22.0	25.6	43.9				
	Post	f	1	2	11	20	48	0.648780	8	0.668292	10
		%	1.2	2.4	13.4	24.4	58.5				
Inquired about "stressful factors" being the causes for patients' symptoms	Pre	f	3	5	22	36	16	0.739024	3	0.809756	6
		%	3.7	6.1	26.8	43.9	19.5				
	Post	f	0	4	15	36	27	0.736585	4	0.795121	7
		%	0.0	4.9	18.3	43.9	32.9				
Thought that patients do require referral to psychiatrists or other mental health professionals	Pre	f	7	5	20	25	25	0.626829	9	0.680487	9
		%	8.5	6.1	24.4	30.5	30.5				
	Post	f	2	4	16	32	28	0.648780	8	0.668292	10
		%	2.4	4.9	19.5	39.0	34.1				
	Post	f	1	7	31	23	20	0.739024	3	0.821951	5
		%	1.2	8.5	37.8	28.0	24.4				
I see children with behavioral problems	Pre	f	5	12	39	19	7	0.692682	7	0.782926	8
		%	6.1	14.6	47.6	23.2	8.5				
	Post	f	1	14	31	23	13	0.692682	7	0.782926	8
		%	1.2	17.1	37.8	28.0	15.9				
I see elderly with primary psychiatric problems	Pre	f	5	11	30	31	5	0.739024	3	0.821951	5
		%	6.1	13.4	36.6	37.8	6.1				
	Post	f	3	14	28	26	11	0.692682	7	0.782926	8
		%	3.7	17.1	34.1	31.7	13.4				
I educate patients and relatives about the side effects of medicines used in psychiatry	Pre	f	3	17	9	26	27	0.692682	7	0.782926	8
		%	3.7	20.7	11.0	31.7	32.9				
	Post	f	2	4	14	25	37	0.692682	7	0.782926	8
		%	2.4	4.9	17.1	30.5	45.1				
I check for the presence of any major psychiatric disorder in patients with drug use	Pre	f	6	11	19	31	15	0.692682	7	0.782926	8
		%	7.3	13.4	23.2	37.8	18.3				
	Post	f	2	5	20	26	29	0.692682	7	0.782926	8
		%	2.4	6.1	24.4	31.7	35.4				

skill in the area of severe mental disorders, disability, and rights of person with mentally ill. However, the participants had very good opportunity to do many clinical presentations about the patients with different mental illnesses, their treatments, and side effects management during their learning program which made them to have more confidence in managing patients with various mental illnesses and their drug side effects. The analysis

portrays that the nurses had fair enough knowledge in the mental health field to address the community population. Most of the nurses provided fair enough nursing management with drug side effect therapy prior to and after the training program with significant improvement of confidence. However, we could find out the variations between knowledge, practice, and confidence. The descriptive analysis and Relative Importance Index value

Table 3: Nurses' responses towards confidence in providing nursing management for the selected mental illness during the pre-test and post-test n=82

Variables	Confidence	Pre		Post		Relative Importance Index			
		f	(%)	f	(%)	Pre		Post	
						RII Value	Rank	RII Value	Rank
Depression	Low (1)	6	7.3	0	0.0	0.788617	3	0.955284	2
	Moderate (2)	40	48.8	11	13.4				
	High (3)	36	43.9	71	86.6				
Anxiety	Low	6	7.3	0	0.0	0.808943	1	0.959349	1
	Moderate	35	42.7	10	12.2				
	High	41	50.0	72	87.8				
Mixed anxiety	Low	8	9.8	0	0.0	0.495934	12	0.894308	8
	Moderate	54	65.9	26	31.7				
	High	20	24.4	56	68.3				
Suicide attempt	Low	10	12.2	1	1.2	0.756097	6	0.910569	6
	Moderate	40	48.8	20	24.4				
	High	32	39.0	61	74.4				
Alcohol dependence	Low	9	11.0	0	0.0	0.772357	4	0.934959	4
	Moderate	38	46.3	16	19.5				
	High	35	42.7	66	80.5				
Tobacco addiction	Low	7	8.5	0	0.0	0.804878	2	0.947154	3
	Moderate	34	41.5	13	15.9				
	High	41	50.0	69	84.1				
Somatoform disorder	Low	16	19.5	4	4.9	0.4959934	12	0.857723	12
	Moderate	46	56.1	27	32.9				
	High	20	24.4	51	62.2				
Bipolar disorders	Low	14	17.1	3	3.7	0.711382	9	0.869918	11
	Moderate	43	52.4	26	31.7				
	High	25	30.5	53	64.6				
Schizophrenia	Low	14	17.1	34	41.5	0.7195121	8	0.678861	14
	Moderate	41	50.0	11	13.4				
	High	27	32.9	37	45.1				
Dementia	Low	45	54.9	2	2.4	0.565040	11	0.873983	10
	Moderate	17	20.7	27	32.9				
	High	20	24.4	53	64.6				
Childhood and adolescent mental disorders	Low	12	14.6	0	0.0	0.691056	10	0.886178	9
	Moderate	52	63.4	28	34.1				
	High	18	22.0	54	65.9				
Sleep disorder	Low	11	13.4	2	2.4	0.731707	7	0.902439	7
	Moderate	44	53.7	20	24.4				
	High	27	32.9	60	73.2				
Sexual disorder	Low	2	2.4	2	2.4	0.808943	1	0.808943	13
	Moderate	43	52.4	43	52.4				
	High	37	45.1	37	45.1				
Overall confidence in managing mental illnesses	Low	9	11.0	0	0.0	0.760162	5	0.939024	5
	Moderate	41	50.0	15	18.3				
	High	32	39.0	67	81.7				

and its rank reveal that majority of the nurses gave importance to diagnosing and managing the alcohol dependence and counseling towards quitting alcohol in the pre-test (RII value: 0.87, Ranks: 1) and post-test (0.873170, Rank: 1) even after the online training. With this we could arrive the assumption of that, most of the people who lived in the community had the habit of alcohol abuse. Similarly, nurses gave more importance towards common mental illness such as anxiety and depression. As a

primary healthcare worker, the nurses contributed their service towards early identification of the common mental disorders such as anxiety and depression and they also provided nursing care for the same. Majority of the respondents had moderate to high confidence in managing the depressive disorder, anxiety, and alcohol dependence syndrome prior to and after the training, respectively. Further, they gained overall confidence to counsel the patients who had side effects of psychotropic drugs. At

Table 4: Nurses' responses on confidence in side effects management for the selected psychotropic drugs $n=82$

Variables	Assessment		Responses			Pre		Post	
			Low (1)	Moderate (2)	High (3)	RII Value	Rank	RII Value	Rank
Newer antidepressants	Pre	f	17	42	23	0.691056	6	0.873983	6
		%	20.7	51.2	28.0				
	Post	f	2	27	53				
		%	2.4	32.9	64.6				
Tricyclic antidepressants	Pre	f	15	51	16	0.670731	10	0.861788	8
		%	18.3	62.2	19.5				
	Post	f	2	30	50				
		%	2.4	36.6	61.0				
New generation antipsychotics	Pre	f	16	42	24	0.699186	5	0.678861	11
		%	19.5	51.2	29.3				
	Post	f	34	11	37				
		%	41.5	13.4	45.1				
First-generation antipsychotics	Pre	f	16	45	21	0.686991	7	0.857723	9
		%	19.5	54.9	25.6				
	Post	f	2	31	49				
		%	2.4	37.8	59.8				
Benzodiazepine	Pre	f	12	44	26	0.723577	2	0.906504	3
		%	14.6	53.7	31.7				
	Post	f	1	21	60				
		%	1.2	25.6	73.2				
Mood stabilizers	Pre	f	15	43	24	0.703252	4	0.886178	5
		%	18.3	52.5	29.3				
	Post	f	2	24	56				
		%	2.4	29.3	68.3				
Antiaddiction drug for alcohol	Pre	f	14	50	18	0.682926	8	0.865853	7
		%	17.1	61.0	22.0				
	Post	f	2	29	51				
		%	2.4	35.4	62.2				
Nicotine replacement therapy	Pre	f	18	43	21	0.678861	9	0.902439	4
		%	22.0	52.4	25.6				
	Post	f	0	24	58				
		%	0.0	29.3	70.7				
Electroconvulsive therapy	Pre	f	21	37	24	0.678861	9	0.837398	10
		%	25.6	45.1	29.3				
	Post	f	5	30	47				
		%	6.1	36.6	57.3				
Counseling	Pre	f	8	37	37	0.784552	1	0.959349	1
		%	9.8	45.1	45.1				
	Post	f	0	10	72				
		%	0.0	12.2	87.8				
Overall antipsychotic drug side effects management	Pre	f	14	41	27	0.719512	3	0.926829	2
		%	17.1	50.0	32.9				
	Post	f	0	18	64				
		%	0.0	22.0	78.0				

the same time, nurses concentrated on sexual disorders as an important aspect prior to the training. However, it has been changed in the post-test since they gave more importance to the common mental disorders such as anxiety and depression as per the ranking [Table 3]. While comparing the standard deviation (SD) value of the nursing practice and confidence level in managing the patients with mental illness, we could find out the uniformity of nursing practice after the online training

program. Wherein, after the digital course, an increased mean practice score with narrowness in the SD value was found in the post-test assessment (47.34 ± 7.12), while in pre-test the mean score was lesser and wider SD (41.96 ± 9.66). These findings reveal that the given online training program had created positive impact on nurses' knowledge, practice, and confidence in managing the mentally ill patients in their community. Similar findings were discussed in various other

studies.^[16-18] However, in the present study, nurses reported that they did not have the confidence to manage some of the mental illnesses like “schizophrenia,” “bipolar disorders,” and “somatoform” kinds of illnesses. This could be because of a difficult level of understanding of the disease conditions and psychopathology of the illness. The advanced specific online course would enhance their confidence level.

Strength of The Study: The educational program conducted in this study was structured and approved online certified program by the national level institute.

Recommendation: This study recommends that the future programs can concentrate on schizophrenia, perinatal psychosis, disability, rights of mentally ill, bipolar disorders, and somatoform kinds of mental illnesses and advanced modules on specific areas. The study also suggests conducting a learning program with detailed specific curriculum modules for each mental health disorder.

Limitations: Nurses who participated in this study had self-reported their nursing practices. Hence, there may be a chance for self-reporting bias. Further, this study followed a RCR method of data collection and follow-up towards study participants’ nursing practice was limited.

CONCLUSION

Continuing education for the health professionals plays a very important role. In this study, the researchers have seen the positive impact of the digital learning program. Based on the findings, it is understood that overall knowledge and practice of the nurses seems to be improved after the learning program. Also, findings revealed the changes in nurses’ knowledge, practice, and confidence in managing mentally ill patients and side effects of psychotropic medications after the training program. The case-based presentation had made significant changes in the nursing practice and improved the number of cases identified with nursing diagnosis and management of the mentally ill patients. The authors also suggest to conduct the advanced digital learning course for some of the specific mental health disorders.

Ethical approval

Ethical approval was obtained from the Institute Ethical Committee NIMHANS [RefNo. NIMHANS/IEC (BEH. SC. DIV) MEEING/2020-21 Dated 10.09.2020]. All participants consented to the study before the NDA learning program.

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Authors contributions

RK, 1st Author and Principal Investigator (PI)-conceptualization, preliminary drafting, data collection, data compilation, overseeing analysis, draft approval, and correspondence.

SLG, 2nd Author and Co-PI-overseeing the draft and corrections.

PN, 3rd Author and Co-PI-overseeing the draft corrections.

RR, 4th Author PhD Scholar-drafted the manuscript, data processed, analysis, and finalizing the draft.

PM, 5th Author, contributed statistical consultations, analysis, and overseeing the corrections.

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Conflicts of interest

There are no conflicts of interest.

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