A Comparative Study of Teaching Approach Nursing Simulation Vs Group Discussion on Respiratory Assessment in Terms of Knowledge and Critical Thinking Abilities Among Nursing Students of Selected Colleges of Kheda - Anand District."

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Abstract

Introduction: Clinical education in nursing aims to integrate theoretical knowledge from books into practical knowledge in real-life situations and to help students develop their problem-solving skills. Due to rapid changes in clinical placements, patient safety issues, and ethical concerns, students‟ direct experience with patient care and opportunities to handle problem-based clinical situations have been diminished. Simulation-based education is a useful pedagogical approach that provides nursing students with opportunities to practice their clinical and decision-making skills through varied real-life situational experiences, without compromising the patient‟s well-being. Simulation-based clinical education in nursing refers to a variety of activities using patient simulators, including devices, trained persons, lifelike virtual environments, and role-playing, not just handling mannequins with realistic clinical scenarios, simulation-based educational interventions in nursing can train novice as well as experienced nurses, helping them develop effective non-technical skills, practice rare emergency situations, and providing a variety of authentic life-threatening situations. The advantages of simulation-based educational interventions include the ability to provide immediate feedback, repetitive practice learning, the integration of simulation into the curriculum, the ability to adjust the difficulty level, opportunities to individualize learning, and the adaptability to diverse types of learning strategies. Alongside, group discussion improves your thinking, listening and speaking skills. It also promotes your confidence level.

Aims: The central focus of this study is to compare to teaching approaches: Nursing simulation Vs Group Discussion on a particular topic that is respiratory assessment. Here, in the present study the researcher want to understand the cognition and critical thinking abilities among the nursing students studying in the selected colleges of Kheda – Anand District.

Objective: To assess knowledge and critical thinking abilities of nursing students on respiratory assessment before and after administration of nursing simulation teaching approach among nursing students of selected colleges of Kheda-Anand district.
To determine knowledge and critical thinking abilities of nursing students on respiratory assessment before and after administration of Group discussion teaching approach among nursing students of selected colleges of Kheda –Anand district.
To compare posttest knowledge and critical thinking abilities on respiratory assessment between Nursing simulation and Group discussion among nursing students of selected Colleges of Kheda –Anand district.
To find out association between selected demographic variable and level of knowledge and critical thinking ability among nursing students of selected college of nursing of Kheda-Anand district.

Methodology: Design and Setting: - A quantitative approach was adopted by the researcher were comparative research design was chosen to evaluate the effectiveness between nursing simulation and group discussion on respiratory assessment topic. The study was conducted among three selected nursing colleges situated in Kheda- Anand district .A two group pretest –posttest research design was used.
A total of 6 students were chosen for pilot study and 60 students for main study, the students were selected through non-probability convenient sampling technique.
The tools in the study includes three sections, first section comprises of questionnaire related to demographic data, second section consists of items related to knowledge of respiratory assessment, third includes critical thinking scenario of respiratory assessment.
Statistical Analysis used Descriptive statistics applied where, data were analyzed by using SPSS software, and Frequency, percentage, tables etc. were used to represent the statistical data in the tables and graph and figure. Chi-square test was used to assess the significant association between the demographic and level of perception to test the hypothesis.

Results: The study revealed that most of the students were participated in nursing simulation programme were in age group in age group of 18-19years 24(80%) , 25(83.3%) were females , 19(63.3%) were belongs to urban family, 18(60.0%%) were travelling home for less than 30 minutes and students were in B.Sc nursing Course session
In group discussion, most of the students were in age group of 18-19 years 19(63.3%), 27(90.0%) were females, 20(66.7%) belongs to urban family, 19(63.3%) were travelling home within less than 30 minutes and were attending B.Sc nursing course session.

The study also reported that in simulation group post-test knowledge score was 21.07 (±2.78). As per the post-test level of knowledge most of the students i.e., 20 (66.7%) were having good knowledge regarding respiratory assessment, whereas the post-test knowledge score of the group discussion group was 15.37 (±3.40). As per the level of knowledge maximum students i.e., 24 (80.00%) were having average level of knowledge regarding respiratory assessment.

The„t" test value found to be 10.19 for simulation n group and 3.06 for group discussion group. The comparison was done by using un-paired" test. It depicts the„t" value 7.11 which was statistically significant at $p<0.05$.Whle analyzing the critical thinking score posttest the mean value is 17.87 for simulation group but for group discussion group is 11.87. There is significant statistical difference between the two scores.

Conclusions: Thus the study concluded that both the methods are appropriate to teaching the students a particular phenomenon, the study also revealed that nursing simulation technique is more effective than the group discussion method.

Keywords: students, nursing simulation, group discussion, respiratory assessment

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INTRODUCTION

The respiratory system brings fresh air filled with oxygen through your nose and mouth, down your windpipe, and into your lungs [1]. The lungs let the fresh air into your body and collect the used-up air and push it out of the body when you breathe out [2]. Human errors are stated causing the most common incidents and posing the greatest threat to patient safety. Errors might possibly be linked to individual competence, team performance, properties of health personnel"s tools, operating environment and tasks; whereas safety improvement comes from understanding and influencing these connections [3]. Professional care must be applied by a nurse towards people, additionally referred to as the client, associate with a state exceptionally what client can control by own ability or what can be stated in their daily living [4]. Thus, there is a need for changes in nursing education to help facilitate students to transfer theoretical knowledge into a clinical context, and to develop the necessary [5].Nursing education includes both technical and non-technical skills based on scientific knowledge, as well as a professional judgment in making professional practice fallible, which makes patient safety a fundamental principle of good patient care [6]. An approach is a way of looking at teaching and learning. Underlying any language teaching approach is a theoretical view of what language is, and of how it can be learnt [7].

Sometimes in both the clinic and the encounter with the patient, the situation may not facilitate well for learning; for reasons of patient safety, mistakes should not be done, the need for rapid actions is present and the patient should feel safe and secure about the treatment and nursing being provided. Therefore, nursing simulation is a subset of healthcare simulation, which is the modern day way to educate and train nursing professionals without risking patient injury.

Objective

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To determine knowledge and critical thinking abilities of nursing students on respiratory assessment before and after administration of Group discussion teaching approach among nursing students of selected colleges of Kheda –Anand district.

To compare posttest knowledge and critical thinking abilities on respiratory assessment between Nursing simulation and Group discussion among nursing students of selected Colleges of Kheda –Anand district.

To find out association between selected demographic variable and level of knowledge and critical thinking ability among nursing students of selected college of nursing of Kheda-Anand district.

Materials And Methods

Research Approach: - Quantitative research approach

Research Design: - Quasi experimental two group pretest –posttest research design.

Research Variables

Dependant variables: Knowledge and critical thinking of the students

Demographic variables: Age , gender , residence , course , travelling distance from home

Sampling method: Non probability sampling technique - Convenient sampling technique was used for selecting the students who meets the purpose of study.

Instrument for Data Collection: For the data collect four section of tools were prepared which includes to assess their demographic data, questionnaire related to respiratory assessment, likert scale for critical thinking and sequencing based questionnaires.

Study population

Study Sample: - Nursing students

Study Setting: 3 selected colleges of Kheda-Anand districts, which are Vinayaka College of Nursing Nadiad, Dinsha Patel College of Nursing, Nadiad and Zydus College of Nursing, Anand.

Sample Size: - 60 nursing students

Sample Criteria

Inclusion criteria:

Students who are in S.Y.B.SC (N).

Students who are willing to participate.

Exclusive criteria

Students who are absent at the time of data collection

Tool for Data Collection:

SECTION – A: Questionnaires related to Demographic Data

SECTION-B: Structured knowledge Questionnaires of Respiratory Assessment among nursing students SECTION –C: Questionnaires regarding critical thinking scenario of respiratory assessment

Results

Section I: Demographic variables of nursing students.

The study revealed that most of the students were participated in nursing simulation programme were in age group in age group of 18-19years 24(80%) , 25(83.3%) were females , 19(63.3%) were belongs to urban family, 18(60.0%%) were travelling home for less than 30 minutes and students were in B.Sc nursing Course session

In group discussion, most of the students were in age group of 18-19 years 19(63.3%), 27(90.0%) were females, 20(66.7%) belongs to urban family, 19(63.3%) were travelling home within less than 30 minutes and were attending B.Sc nursing course session.

Table 1: Frequency and Percentage distribution according to demographic variables

Items	Nursing Simulation		Group Discussion	
	F	P	F	P
Age				
18-19 years	24	80.0	19	63.3
20-21 years	4	13.3	10	33.3
22-23 years	1	3.3	0	0
24 years and above	1	3.3	1	3.3
Gender				
Male	5	16.7	3	10.0
Female	25	83.3	27	90.0
Place of residence				
Urban	19	63.3	20	66.7
Rural	11	36.7	10	33.3
Travelling hours from home to college				
<3o min	18	60.0	19	63.3
30 mins to 1 hr	6	20.0	6	20.0
> than 1 hr	6	20.0	5	16.7
Study course				
B.Sc (N)	30	100	30	100
Year Of College				
1st year	0	0	1	3.3
2nd year	29	96.7	29	96.7

Key: (F) = Frequency, (%) = Percentage

Section II: Distribution according to Comparison between Pretest and Post test Score of Two groups.

Table 2:- Comparison between Pretest and Post test Score of Two groups.

Group		Mean	Std. Deviation	t test	DF	Table Value	Sig/Non Sig
Nursing Simulation	Pre Test Knowledge	12.30	3.49	10.194	29	2.05	Sig
	Post Test Knowledge	21.07	2.78				
	Pre Test Critical Thinking	12.00	2.89	9.837	29	2.05	Sig
	Post test Critical Thinking	17.87	2.56				
Group Discussion	Pre Test Knowledge	13.80	2.98	3.065	29	2.05	Sig
	Post Test Knowledge	15.37	3.40				
	Pre Test Critical Thinking	10.63	3.72				
	Post test Critical Thinking	11.87	3.88				

The findings of the study depicts that after implementation of simulation and group discussion to the both groups respectively there was significant change in post-test knowledge and critical thinking abilities regarding respiratory assessment among the students, as the „t" value in the simulation group was 10.19 which was statistically significant at $p < 0.05$ which also shows the effectiveness of simulation. The findings also depicts that after group discussion the „t" value was 3.06 which was statistically significant at $p<0.05$ which also shows the effectiveness of group discussion.

Section III: Comparison of scores between different groups

Table 3: Comparison between critical thinking of nursing students Section IV (A): Comparison between Pre and Post Knowledge Score.

Group		Mean	Std. Deviation	Unpaired t	DF	Table Value	Sig/Non Sig
Pre Test Knowledge	Nursing Simulation	12.30	3.49				
	Group Discussion	13.80	2.98	1.793	58	1.98	Non Sig
Post Test Knowledge	Nursing Simulation	21.07	2.78				
	Group Discussion	15.37	3.40	7.112	58	1.98	Sig
Pre Test Critical Thinking	Nursing Simulation	12.00	2.89				
	Group Discussion	10.63	3.72	1.59	58	1.98	Non Sig
Post test Critical Thinking	Nursing Simulation	17.87	2.56				
	Group Discussion	11.87	3.88	7.068	58	1.98	Sig

Table 4: Pretest Knowledge Score

Pre Test Knowledge			
Group		Frequency	Percent
Nursing Simulation	Average	20	66.7
	Poor	10	33.3
	Total	30	100.0
Group Discussion	Average	27	90.0
	Poor	3	10.0
	Total	30	100.0

Here, in this table majority of the students in the simulation group have average knowledge 20(66.7%) and group discussion, 27(90.0%) have average knowledge.

Post Test Knowledge

Table 5: Post Test Knowledge Score

Group		Frequency	Percent
Nursing Simulation	Average	9	30.0
	Good	21	70.0
	Total	30	100.0
Group Discussion	Average	19	63.3
	Good	4	13.3
	Poor	7	23.3
	Total	30	100.0

Here, it can be clearly seen that at posttest level most of the students in the

Both groups good knowledge that is 20(60%), 24(80%) respectively.

Section IV (B): Comparison between Pre and Post Critical Thinking Score.

Section V: Association between Pretest Knowledge Score and the Demographic Variable.

Table 6: Association between the Pretest score and Demographic Variable in simulation group

		Pre Test Knowledge		Total	Fishers Chi Square	DF	Table Value	Sig/Non Sig
		Average	Poor					
Age in year	18-19 years	16	8	24	2.483	3	7.82	Non Sig
	20-21 years	3	1	4				
	22-23 years	0	1	1				
	24 years and above	1	0	1				
Gender	Male	3	2	5	0.12	1	3.84	Non Sig
	Female	17	8	25				
Place of Residence	Urban	13	6	19	0.072	1	3.84	Non Sig
	Rural	7	4	11				
Travelling hours from home to college	Less than 3o minutes	13	5	18	3.585	2	5.99	Non Sig
	30 minutes to 1 hour	5	1	6				
	More than 1 hour	2	4	6				
Which course are you studying	B.Sc(N)	20	10	30	Cant Be Computed			
Which year of college are you studying	1st year	1	0	1	0.517	1	3.84	Non Sig
	2nd year	19	10	29				
Have you ever attend any class for respiratory assessment	Yes	20	8	28	4.286	1	3.84	Sig
	No	0	2	2				

The above table shows the association of pretest knowledge scores for Simulation group with demographic Variables. Fishers Chi Square test has been applied as some of the cells have expected values less than 5. It is seen that attending the class is significantly associated with the scores.

Table 7: Association between Pretest critical score and Demographic Variable in simulation group.

		Pre Test Critical Thinking		Total	Fishers Chi Square	DF	Table Value	Sig/Non Sig
		Average	Poor					
Age in year	18-19 years	18	6	24	1.789	3	7.82	Non Sig
	20-21 years	4	0	4				
	22-23 years	1	0	1				
	24 years and above	1	0	1				
Gender	Male	3	2	5	1.5	1	3.84	Non Sig
	Female	21	4	25				
Place of Residence	Urban	16	3	19	0.574	1	3.84	Non Sig
	Rural	8	3	11				
Travelling hours from home to college	Less than 3o minutes	15	3	18	0.833	2	5.99	Non Sig
	30 minutes to 1 hour	5	1	6				
	More than 1 hour	4	2	6				
Which course are you studying	B.Sc(N)	24	6	30	Cant Be Computed			
Which year of college	1st year	0	0	0	0.259	1	3.84	Non Sig
	2nd year	23	6	30				
	Yes	22	6	28				
	No	2	0	2				

There were no significant association of pre-test critical thinking abilities in the simulation group regarding respiratory assessment among students with their socio-demographic variables.

Table 8: Association of Pretest knowledge Score and demographic variable of Group discussion group.

		Pre Test Knowledge		Total	Fishers Chi Square	DF	Table Value	Sig/Non Sig
		Average(11-20)	Poor (1-10)					
Age in year	18-19 years	17	2	19	1.024	2	5.99	Non Sig
	20-21 years	9	1	10				
	24 years and above	1	0	1				
Gender	Male	3	0	3	0.37	1	3.84	Non Sig
	Female	24	3	27				
Place of Residence	Urban	18	2	20	0.001	1	3.84	Non Sig
	Rural	9	1	10				
Travelling hours from home to college	Less than 3o minutes	17	2	19	1.311	2	5.99	Non Sig

	30 minutes to 1 hour	6	0	6				
	More than 1 hour	4	1	5				
Which course are you studying	B.Sc(N)	27	3	30	Cant Be Computed			
Which year of college are you studying	1st year	0	0	0	0.115	1	3.84	Non Sig
	2nd year	27	3	30				
Have you ever attend any class for respiratory assessment	Yes	13	2	15	0.37	1	3.84	Non Sig
	No	14	1	15				

The present study findings revealed that in the group discussion group there is no pre-test knowledge association with their socio-demographic variables.

Table 9: Association of Pretest Critical Thinking score and Demographic Variable

		Pre Test Critical Thinking			Total	Fishers Chi Square	DF	Table Value	Sig/Non Sig
		Average	Good	Poor					
Age in year	18-19 years	14	1	4	19	6.298	4	9.49	Non Sig
	20-21 years	5	0	5	10				
	24 years and above	0	0	1	1				
Gender	Male	2	1	0	3	10.117	2	5.99	Sig
	Female	17	0	10	27				
Place of Residence	Urban	14	0	6	20	2.621	2	5.99	Non Sig
	Rural	5	1	4	10				
Travelling hours from	Less than 3o minutes	12	0	7	19	4.038	4	9.49	Non Sig
home to college	30 minutes to 1 hour	4	1	1	6				
	More than 1 hour	3	0	2	5				
Which course are you studying	B.Sc(N)	19	1	10	30	Cant Be Computed			
Which year of college are you studying	1st year	0	0	0	0	3.546	2	5.99	Non Sig
	2nd year	21	1	9	30				
Have you ever attend any class for respiratory assessment	Yes	11	0	4	15	1.81	2	5.99	Non Sig
	No	8	1	6	15				

Here, the tale depicts the association between pre Critical thinking and Demographic Variables. None of the demographic variables are significantly associated with the t critical thinking scores. It revealed that in the group discussion group the socio-demographic variable such as gender showing significant association with pre-test critical thinking abilities among students

Conclusion

On the basis of findings of this study the following conclusion were drawn:

The purpose of the study was to compare between the two phenomenon of teaching method that are nursing simulation and the group discussion thus it was concluded that both the methods have their own significant level to improve the knowledge among the nursing students. Both are effective to increase the knowledge level and improve their critical thinking level.

Conflict of Interest

Nil (there is not any conflict of interest between the all authors)

Source of Funding

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Ethical Clearance

The study was approved by the institutional ethical committee of Dinsha Patel College of nursing, research committee. There are total 15 members in the committee from various field. The ethical approval reference number is ( ) and a formal written permission was gathered from the authority of or Principal of Institute prior to data collection

Statement of Informed consent

Yes informed consent form was acquired from the

participants prior to data collection.

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