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Original Article

Effect of Buzz Group Regarding Content Knowledge and Practice On Fistula Care for Patients with Hemodialysis among Second Year Baccalaureate Nursing Students

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Abstract

Aim: The aim of the study is to assess the knowledge and practice on fistula care for patient with hemodialysis among 2nd year Baccalaureate nursing students.

Introduction: A quantitative approach with Quasi-experimental two group pretest posttest design was adopted with conceptual framework of J.W Kenny's open system was used.

Methodology: Data were collected from 96 second-year Baccalaureate nursing students to access knowledge using Structured Questionnaire, and Likert scale to assess practice through Objective Structured Practical Examination by Non-probability convenient sampling method. Pilot study followed by actual data collection was done and analyzed using descriptive and inferential statistics.

Results: (1) Statistical analysis shows that pre-test mean knowledge score was score was 5.89 whereas the mean post-test score was 11.63. Wilcoxon signed-rank test gives $P = 0.000$ that has a highly significance as $P < 0.001$. Hence H_{01} is rejected. The Buzz group was effective in improving the knowledge regarding fistula care for patient with hemodialysis in the experimental group. (2) Statistical analysis shows that the posttest practice mean score was in the experimental group was 71.52 with a standard deviation of 2.99; whereas the control group mean score was 39.66 with standard deviation of 2.54. Wilcoxon signed-rank test indicate $P = 0.000$ that is < 0.05. Hence the Buzz group was effective in improving the knowledge and practice of fistula care for patient with hemodialysis.

Conclusion: Finding revealed that buzz group is effective in improving knowledge and practice on fistula care for patient with hemodialysis among 2nd year Baccalaureate nursing students.

Keywords: Buzz group, content knowledge, effect, fistula care, hemodialysis, practice

Introduction

Surgically anastomosis is created between vein and artery is called fistula. The main purpose fistula is to dilate a vein for performing hemodialysis. A surgically created anastomosis is made between an artery and vein consequently permitting arterial blood to pass through the vein. Arteriovenous (AV) fistula are preferred long-term dialysis access because they last longer than any other vascular type and are less chance for infection and clotting.[1]

A powerful hemodialysis remedy is dependent on a well-functioning vascular access with blood flow, extremely good patency, and permits easy and repetitive cannulation with needles.[2]

Vascular access reliability for hemodialysis is meticulously related with outcome of dialysis. When new or inexperience dialysis staff manipulates the vascular access, it is found that

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there was a higher rate of complication in the hemodialysis patient with vascular access. Nephrology nurses can identify the following incidence of complication such as vascular access site infection, thrombosis, and bleeding. They can recognize the sources and permit educative action to be taken.

Therefore, an educational program on care of AV fistula is essential for nurses to improve their knowledge and practice for patient safety.[3]

The traditional (didactics) teaching method usually involves a teacher-centered approach in the nursing education system the faculty deliver lecture through a passive mode. Education must begin with the child and must be adapted to the needs and requirements of the child as he grows. A progressive method of teaching provides suitable opportunities for "learning by doing," for "experimentation" and for "co-operation" A method of teaching must link up the teacher and her pupils into an organic relationship with constant mutual interaction.

Various teaching methods are incorporated in the nursing curriculum which is prescribed by Indian Nursing Council. There are various novel teaching strategies which influence the competence and critical thinking skill among nursing students.[4]

Fistula care for hemodialysis patients is a great concern. Nursing students in the Hemodialysis unit need to take care of the patient with fistula who are on hemodialysis. Majority of such procedure is taught through didactic lecture which improves knowledge but competence in doing on patient need more reinforcement strategies.

Researcher personal experiences with UG students posted in dialysis unit, where students are unable to do fistula care due to lack of competence. This motivated to take up a novel teaching strategy as Buzz Group to incorporated as a learning method for 2nd year Baccalaureate nursing students on fistula care to enhance knowledge and competency.[5]

Problem statement

Effect of Buzz group regarding content knowledge and practice on Fistula care for patients with hemodialysis among 2nd year Baccalaureate nursing students.

Objective

- To assess the content knowledge regarding fistula care for patients with hemodialysis among 2nd year Baccalaureate nursing students before and after buzz group in the experimental group
- To assess the content knowledge regarding fistula care for patients with hemodialysis among 2nd year Baccalaureate nursing students in the control group
- To assess the practice through objective structured practical examination regarding fistula care for patients with hemodialysis among 2nd year Baccalaureate nursing students after intervention in experimental group.

Materials and Methods

This study uses a Quasi-experimental two group pretest posttest design with Non-probability convenient used. The present study was conducted for 98 second year baccalaureate nursing students from selected two Nursing colleges of Navi Mumbai which was divided into Experimental and control group. In this study dependent variable is Content Knowledge and Practice regarding care of fistula with hemodialysis patient. In this study independent variable is the Buzz group.

The study was conducted at two nursing colleges of Navi Mumbai.

Second year Baccalaureate nursing students who are:

- Present during the study
- Willing to participate in the study
- Not taught on fistula care previously in the class.

In this study data instrument prepared is structured questionnaire to assess knowledge and Likert scale to assess the practice in relation to care of fistula among hemodialysis patient. In this study content validity of both tool for knowledge and practice was validated by 17 experts from various field. The suggestion and recommendation that were given by guide and experts were incorporated into the tool. The test-retest method was used to find the reliability of the structured questionnaire to assess the knowledge of fistula care for patients with hemodialysis and interrater reliability to practice among second year Baccalaureate nursing students. Obtained ethical permission from MGMIHS on October 2020. Informed consent was obtained from each participant and structured questionnaire was distributed to the students for data collection. Pilot study was conducted from January 15, 2021 to January 22, 2021 at nursing college of Navi Mumbai on 12 samples. The finding of the study helped the investigator to visualize the practical problems that could be encountered while the conducting main study like arranging for the dated to conduct the study. The tool was submitted to experts. The content validity was done by various experts in the field of nursing and nephrology.

Results

Section 4.1: Distribution of demographic data of second year baccalaureate nursing students using frequency and percentage

Table 1 depicts that 24 (50%) of students were in the age group of 19 years and 24 (50%) were in the age group of 20 years in the Experimental group; whereas 18 (37.5%) were in the age group of 19 years and 30 (62.5%) were in the age group of 20 years in Control group, 47 students (98%) majority of the students are female in the experimental group. Whereas 42 (87.5%) were female and 6 (12.5%) were male in the control group participated in the study.

Out of 48 students, 18 (37.5%) had previous knowledge about fistula care from books and 30 (62.5%) students does not have any previous knowledge; 12 students (25%) learned from books, 36 students (75%) learned from other sources in the experimental group; whereas 42 (87.5%) of

Table 1: Distribution of sample based on socio-demographic data *n*=96

Demographic characteristics	Experimental group		Control group	
	f	%	f	%
Age (years)				
19	24	50	18	37.5
20	24	50	30	62.5
Sex (Group leader)				
Female	47	98	42	87.5
Male	1	2	6	12.5
Previous knowledge of arteriovenous fistula care				
Yes	18	37.5	42	87.5
No	30	62.5	6	12.5
If yes, from where/whom				
Friends	0	0	0	0
Books	2	25	24	50
Magazines/mass media	0	0	0	0
Any others	36	75	24	50
Demographic characteristics	**Experimental group**		**Control group**	
	f	%	f	%
Types of hospital				
Teaching	48	100	48	100
Non-teaching	0	0	0	0
General	0	0	0	0
Specialized	0	0	0	0
Community	0	0	0	0
Previously taught in class				
Yes	0	0	0	0
No	48	100	48	100

students from the control group had previous knowledge about Fistula care 24 (50%) learned from books and 24 (50%) learned from other sources. None of them both in the experimental and control group had a previous learning in the class.

Section 4.2: Distribution of sample based on content knowledge regarding fistula care for hemodialysis patients among 2nd year baccalaureate nursing before and after buzz group

Section 4.2.1: Distribution of sample (buzz group) based on content knowledge pre and post-test mean score of fistula care among hemodialysis patients in the experimental group

The above Table 2 shows a significant difference in the mean score of pre-test and post-test in Buzz group. Total of 48 students were divided into eight groups, each group consist of six students. Group 6 shows mean score of pretest (5.83) and post-test increased to (13.16). Hence there is an improvement in the knowledge in all the group., As a result, showing the effectiveness of Buzz group.

Section 4.2.2: Distribution of overall pretest and post-test content knowledge score of the students regarding fistula care for patients with hemodialysis in the experimental group

Table 3, shows that 27 (56.25%) of sample had an average knowledge and 21 (43.75%) had poor knowledge during pre-test, while majority of sample 39 (81%) had Good knowledge and 9 (18.75%) had average knowledge during post-test.

Table 2: Group-wise (Buzz Group) distribution of knowledge pre and post-test mean score of fistula care among hemodialysis patients in the experimental group. (Total eight groups are divided from 48 samples and each group consist of six students) *n*=48

Groups	Pretest mean	Post-test mean
G1	5.3333	10.8333
G2	6.3333	12.1667
G3	6.1667	10.1667
G4	7.1667	11.3333
G5	5.6667	11.8333
G6	5.8333	13.1667
G7	5.5	11.3333
G8	5.1667	11.5

Table 3: Distribution of students based on pre-test and post-test content knowledge score of fistula care for patients with hemodialysis during the pre-test in the experimental group. *n*=48

Category of score	Experimental group			
	Pretest		Post test	
	f	%	f	%
Good (11–15)	0	0	39	81.25
Average (6–10)	27	56.25	9	18.75
Poor (1–5)	21	43.75	0	0

Section 4.2.3: Distribution of overall pretest and post-test content knowledge score of the students regarding fistula care for patients with hemodialysis in the control group

Table 4 shows that 37 (77.8%) of sample had an average knowledge and 11 (43.75%) sample had poor knowledge during pretest while maximum sample had average knowledge 47 (98%) and 1 (2%) sample had poor knowledge and none of them sample had the good knowledge in the control group.

Section 4.2.4: Distribution of sample based on significance in the pretest and post-test mean content knowledge score in the experimental group

Table 5, shows that the mean pretest content knowledge was 5.89 with a standard deviation of 1.3565 whereas the post-test mean was 11.54 with a standard deviation of 1.4580. $P = 0.000$ (<0.001) indicates that there is statistically significant difference between pre and post-test in knowledge. Hence, the null hypothesis H_0 is rejected and research hypothesis (H_1) is accepted. The educational intervention was found to be effective in improving the knowledge of study participants regarding fistula care for patients with hemodialysis.

Table 4: Distribution of students based on content knowledge score regarding fistula care for patients with hemodialysis during the pre-test and posttest in the control group. *n*=48

Category of score	Control group			
	Pretest		Post Test	
	f	%	f	%
Good (11–15)	0	0	0	0
Average (6–10)	37	77.8	47	98
Poor (1–5)	11	22.9	1	2

Section 4.2.5: Comparison of the sample based on the significance of the difference in experimental and control group mean content knowledge score on fistula care for patients with hemodialysis

Table 6 depicts that Statistical in the experimental group mean difference in pretest and posttest score was 5.6; whereas the control group mean difference score was 0.89. Wilcoxon signed test was used. p = 0.00 (<0.001) indicates that statistically high significant difference between the experimental and control group.

Section 4.2.6: Comparison of overall item-wise mean score on content knowledge on fistula for patients with hemodialysis among second year Baccalaureate nursing students before and after Buzz group

The above Table 7 shows there is an item-wise significance difference in the pre-test and post-test mean score. Which shows the effectiveness of Buzz group.

Section 4.3: Analysis of practice on fistula care for patient with hemodialysis

Section 4.3.1: Group-wise comparison of practice score on fistula care for patients with hemodialysis in the experimental group

The above Table 8 show that out of eight groups which consist of six students in each group, Group 8 (97%) students completely done all the steps of the procedure of fistula care; whereas Group 7 and Group 5 scored 91%, and other groups score were between 90% and 80% and the least score was for Group 6 i.e. (79%).

Section 4.3.2: Distribution of practice based on overall practice score on fistula care for patients with hemodialysis in experimental group and control group

Table 9 show that all 48 (100%) students had a high level of observed practice, none of them were in the moderate and low

Table 5: Distribution of sample based on Significance of difference in pre-test and post-test mean content knowledge scores regarding fistula care for hemodialysis patients using buzz group in the experimental group. *n*=48

	Experimental group					
Knowledge	Mean	SD	Difference mean	Wilcoxon signed-rank test	*P*-value	Level of significance
Pre test	5.8958	1.35	5.6459	5.934**	<0.001	S
Post-test	11.5417	1.45				

**Statistically highly significant at 0.1% level i.e., P < 0.001. S- Significant.

Table 6: Comparison of the overall mean knowledge score among experimental and control group in relation to fistula care for hemodialysis patients. *n*=96

Knowledge	Pre-test		Post-test		Difference mean	W	*P*-value	Level of significance
	Mean	SD	Mean	SD				
Experimental group	5.89	1.35	11.5	1.45	5.64	5.934	<0.001	S
Control group	6.22	1.15	7.12	0.93	0.89	4.482	<0.001	S

S: Significant

level of observed practice in the experimental group. Whereas all 48 (100%) students had low level of observe practice.

Section 4.3.3: Comparison of practice on fistula care for patients with hemodialysis among experimental and control group

Table 10 show that the posttest practice mean score was in the experimental group 71.52 with standard deviation of 2.99; whereas the control group mean score was 39.66 with standard deviation of 254. Hence the null hypothesis H_0 is rejected and Research hypothesis (H_1) is accepted. The intervention was found to be effective in improving the practice of study participants regarding fistula care for hemodialysis patients.

Table 7: Comparison of overall item wise mean score on content knowledge on fistula for patients with hemodialysis among 2nd year Baccalaureate nursing students before and after Buzz Group *n*=48

Item wise total mean score for knowledge	Pretest mean	Post-test mean
General knowledge on arteriovenous fistula	21	37.5
AVF infection assessment	14.6	35
Assessing arteriovenous fistula	17.3	37.16

Table 8: Comparison of practice score on fistula care for patients with hemodialysis in the experimental group (Buzz group 8) (Each group 6 students)*n*=48

	Buzz groups		
Groups	Completely done	Partially done	Not done
Group 1	85%	4%	11%
Group 2	83%	2%	15%
Group 3	80%	0	20%
Group 4	90%	0	10%
Group 5	91%	0	9%
Group 6	79%	4%	17%
Group 7	91%	0	9%
Group 8	97%	0	3%

Table 9: Comparison of sample based on practice on fistula care for patients with hemodialysis among 2nd year baccalaureate nursing students in the experimental group and control group. *n*=96

Practice	Experimental group		Control group	
	Post-test		Post-test	
	f	%	f	%
High level of observed practice	48	100	0	0
Moderate level of observed practice	0	0	0	0
low level of observed practice	0	0	48	100

Discussion

In this present study, it was found that the majority 27 (56.25%) students had average knowledge on care of fistula among hemodialysis patients prior to intervention of Buzz group whereas; after the intervention of Buzz group majority 39 (81.25%), students had good knowledge score.

Statistically proved that the mean score significantly improved the fistula care from 5.89 to 11.5.

A Quasi-experimental study done in 2017 also shows that knowledge improved from 75% to 89% regarding vascular access. There was a significant improvement in the mean score of knowledge on vascular access care from 61.5 to 85.9.[3]

The present study also showed that after the intervention of buzz group in the experimental group on fistula care for patient with hemodialysis, all the 48 (100%) students had high level of observed practice. None of the students were in the moderate and low level of observed practice score.[6]

A study conducted on 50 staff nurses to assess practice on HD vascular access care is found that Proper HD access care help to prevent infection which shows 100%.and hand hygiene in HD center to prevent infection.[7]

Buzz group approach became effective to promote students studying comprehension. Furthermore the findings has overwhelmed the researcher with the belief that Buzz group turned into powerful to promote college students' studying in comprehension way of learning.

Conclusion

The finding of the study showed that Buzz group was effective in improving the knowledge and practice regarding fistula care for patient with hemodialysis. There was a significant change observed in pre and post-test knowledge of the experimental group. Students were enthusiastically and actively participated in buzz group. It has been found that students can share their ideas in group's participation and can improve their knowledge.

Acknowledgment

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Table 10: Comparison of overall practice score among experimental group and control group in relation to fistula care for patients with hemodialysis. *n*=48

Group	Score		Wilcoxon rank sum test	*P*-value	Sig. at 5% level
	Mean	SD			
Experiment group	71.5208	2.9964	8.478**	<0.001	S
Control group	39.6667	2.546			

**Statistically highly significant at 0.1% level i.e., P<0.001. S: Significant

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