Effectiveness of Cognitive Edification Programme on Knowledge and Reported Practice of Early Ambulation among Nursing Students in a Selected Nursing Institute

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Abstract

Early ambulation has a vital role in post-operative management. It helps the patient relieve pain, improve healing process and strengthen the muscles; it also improves the patient's self-esteem and the feeling of independence. The practice of early ambulation in post-operative patients depends on the awareness of the nursing students and staff. In this study to find the effectiveness of early ambulation cognitive edification programme, true experimental research pre-test and post-test control group design was used. The sample consisted of 99 first-year nursing students, selected by simple random sampling. Data were collected by administering a structured knowledge questionnaire and reported practice checklist on early ambulation. The pre-test was done to control and experimental group, after 7 days post-test was done to control group with the same tool, cognitive edification programme was given to the experimental group, and on 7th day post-test was conducted to experimental group with the same tool. The collected data were analysed using descriptive and inferential statistics ('t' test). The mean difference in the level of knowledge among nursing students before and after the cognitive edification programme on early ambulation in experimental group was 1.816. It is evident that the calculated t value was more than the table value in the experimental group and the p value is < 0.001. Hence there is a difference in the level of knowledge among nursing students before and after the cognitive edification programme. The mean difference in the reported practice among nursing students before and after the cognitive edification programme on early ambulation in experimental group was 2.898. It is evident that the calculated t value was more than the table value in the experimental group (p < 0.001). Hence there is a difference in the reported practice among nursing students before and after the cognitive edification programme. Majority of the nursing students had poor knowledge of early ambulation before the cognitive edification programme. The post-test knowledge and reported practice score of the experimental group showed a significant increase in the knowledge and reported practice of nursing students. Hence the cognitive edification programme is an effective strategy for providing knowledge and practice.

Patient ambulation, the ability to walk from place to place independently with or without an assistive device, is necessary to improve joint and muscle strength, as well as prevent pressure ulcers during extended bed rest. Early ambulation helps the patient meet the outcome of measurably muscles mass strength and ability to independently move all joints through the complete range of motions. It improves the well-being of patient in the hospital and reduces the total length of hospital stay.

Early ambulation is the most important measure to prevent post-operative complications. Early ambulation is a technique of post-operative care in which a patient gets out of bed and engages in a light activity (such as sitting, standing, or walking) as soon as possible after an operation which is now a fundamental part of nursing care. The practice was not common until the middle of the past century. Initially, early ambulation was considered a 'crackpot' idea. Today, it is recognized and a rapidly approaching a 'must' procedure after surgery. Indeed, the practice of letting patients walk as soon as possible after surgery constituted a major change in the patient's health status and its positive impact on patient recovery. So facilitating patient's ambulation has been considered as an important part of post-operative nursing care.

Early ambulation following a surgical procedure is how recommended for superior outcomes. Although a shorter hospital stay is reported to be a benefit of peri-operative rehabilitation, its effect on patient metabolism has not been fully explored. Ambulation is the ability to move from one place to another, with or without assistive devices. Early walking is one of the most crucial thing patients can do after surgery to prevent post-operative com-

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plications. Moving in a low-intensity activity, ideal for most patients recovering from a surgery or other hospitalization, does not require any equipment, and is the least harmful to the joints and back. Post-surgical ambulation provides a large range of benefits for all patients, especially the geriatric population.

Prolonged immobilisation can result in functional decline and heighten the risk of hospital-associated complications such as falls and pressure ulcers. Early mobilisation, on the other hand, has been shown to prevent functional decline and hospital-associated complications. However, currently, no evidence-based guidelines exist with regard to an early mobilisation protocol for the medical-surgical inpatient population.

Nurses in post-operative care unit play a major role in initiating the early ambulation. Immobilisation in hospitalized patients can lead to events such as venous thromboembolism, hospital-acquired pneumonia, pressure injuries and loss of functional mobility. To initiate early ambulation the nurses, need to be trained and equipped with the knowledge and skill for initiating the early ambulation.

Literature Review

A qualitative study was conducted by Laurie Chatterley in the school of nursing Rhode Island College 2017 on improving nurse's knowledge and attitude of early mobilisation of the post-operative patient. The quality improvement project utilised pre-survey, educational interventions, post-survey design; 25 nurses provided with 15 minutes of a power point presentation. Post-survey scores increased by 16.8 percent when compared to pre-survey. Result explored that there is an improvement of nurses' opinion of the mobilisation (X=8 pre; X=9.44 post). Barriers also noted from pre-survey to post-survey (time: X=5.76 pre; X=5.68 post) (pain X=5.56 pre; X=5.08 post). The in-service education will help to improve the nurse's knowledge and attitude of early mobilisation of the postoperative patient.

In an experimental study on the effectiveness of early ambulation on selected aspects of postnatal operative recovery among women undergone LSCS at Krishna Hospital Karad, random sampling was used in 15 experimental and 15 control group samples. Data was analysed by using descriptive and inferential statistics. Starting from the post-operative day 1 till the 4th day ambulation was given. In both groups, the majority of subjects belong to 21-25 years of age and 36.66 percent primi-gravid were in experimental and 53.33 percent were control group. Statistically the mean score of the experimental group was more compared to a control group. This study concluded that early ambulation improves the activities of daily living and helps to achieve a sense of well-being.

A quasi-experimental study on the effect of planned early recommended ambulation technique on selected post cesarean bio parameter in Krishna Institute of Medical Sciences covered. 250 subjects each in experimental and control group using multiple times series design. Teaching on early ambulation was given to the experimental group from the day of surgery. A significant difference in bio physiological parameters like incision pain, the condition of the breast, the condition of the abdomen and peristaltic movement among the experimental group was revealed. Thus, this study concludes that early ambulation is effective and helps in avoiding morbidity and enhances early recovery.

Another quasi-experimental study was conducted to assess the effectiveness of planned pre-operative teaching on early ambulation for a patient undergoing abdominal surgery at Gurunanak College of Nursing Punjab. There were 30 participants each in experimental and control group. The study revealed that differences in pre-test performance score between the two groups ($p>0.05$) also there was a statistical difference between post-test performance ($p<0.001$). The study concludes that planned pre-operative teaching is effective to increase the level of performance and enhance early recovery.

In a study conducted in Rhode Island College to improve the nurses' knowledge of early mobilisation of the post-operative patient by using power point presentation, 25 nurses were assigned pre/post survey which included-knowledge based and opinion-based question. The post-survey score increased by 16.8 percent than the pre-survey score. Barriers such as pain and the time of early mobilisation were noted; therefore, there was a minimal change in nurses' opinion towards this barrier from pre-survey to post-survey. The study concluded that educational in-services help the nurse to communicate and document mobilisation which improves knowledge and attitudes of early ambulation of post-operative patients.

Objectives

1. To assess the knowledge and reported practice of early ambulation among nursing students in experimental and control group.
2. To find the effectiveness of early ambulation cognitive edification programme on knowledge and reported practice among nursing students between the experimental and control group.
3. To find the relationship between knowledge and reported practice on early ambulation among nursing students.

Hypotheses

H_1: There will be a significant difference in the knowledge and reported practice of nursing stu-

dents before and after the early ambulation cognitive edification program in the experimental group.

H_2: There will be a significant difference in post-intervention scores of knowledge and reported practice in experimental and control group.

H_3: There will be a significant relationship between pre-test knowledge and reported practice scores.

Conceptual Framework

This study is based on the general system by Ludwig Von Bertalanffy (Fig1). The components of the general system theory are – input, throughput, and output.

Input - In the present study input is the pre-test knowledge of the BSc nursing students and demographic variables.

Throughput - Throughput is the cognitive edification programme on early ambulation which helps in improving the knowledge of the students and in-turn helps in preventing the complication, speedy recovery, and early discharge.

Output - Post-test was conducted after 7 days to assess the knowledge and practice on early ambulation. Results in the form of positive and negative outcome are the output in the present study. Negative Outcome is no significant gain in knowledge and practice and positive outcome is a significant gain in knowledge and practice regarding early ambulation among nursing students in a selected nursing institute.

Methodology

Research design selected for the present study was true experimental research pre-test and post-test control group design to evaluate the effectiveness of cognitive edification programme on knowledge and reported practice of early ambulation among nursing students in a selected nursing institute. The study was presented to the institutional ethical committee and ethical clearance obtained.

The dependent variable was nursing college students' knowledge and reported practice on early ambulation as measured by structure knowledge questionnaire and reported practice checklist and the independent variable was cognitive edification on early ambulation. The study was conducted in a selected nursing college at Mangalore; study population comprised of male and female nursing students between the ages of 17 - 23 years in a selected nursing institute at Mangalore. Nursing students who enrolled for 1st year BSc nursing programme were included for this study.

Instruments Used: The following tools which were used for the data collection:

Tool 1- Demographic proforma; Tool 2- Structured knowledge questionnaire; Tool 3- Reported Practice Checklist.

Data Collection Procedure: The data was collected from the 10 April 2018 to 30 April 2018. After obtaining permission from the nursing college principal, study purpose was explained to the

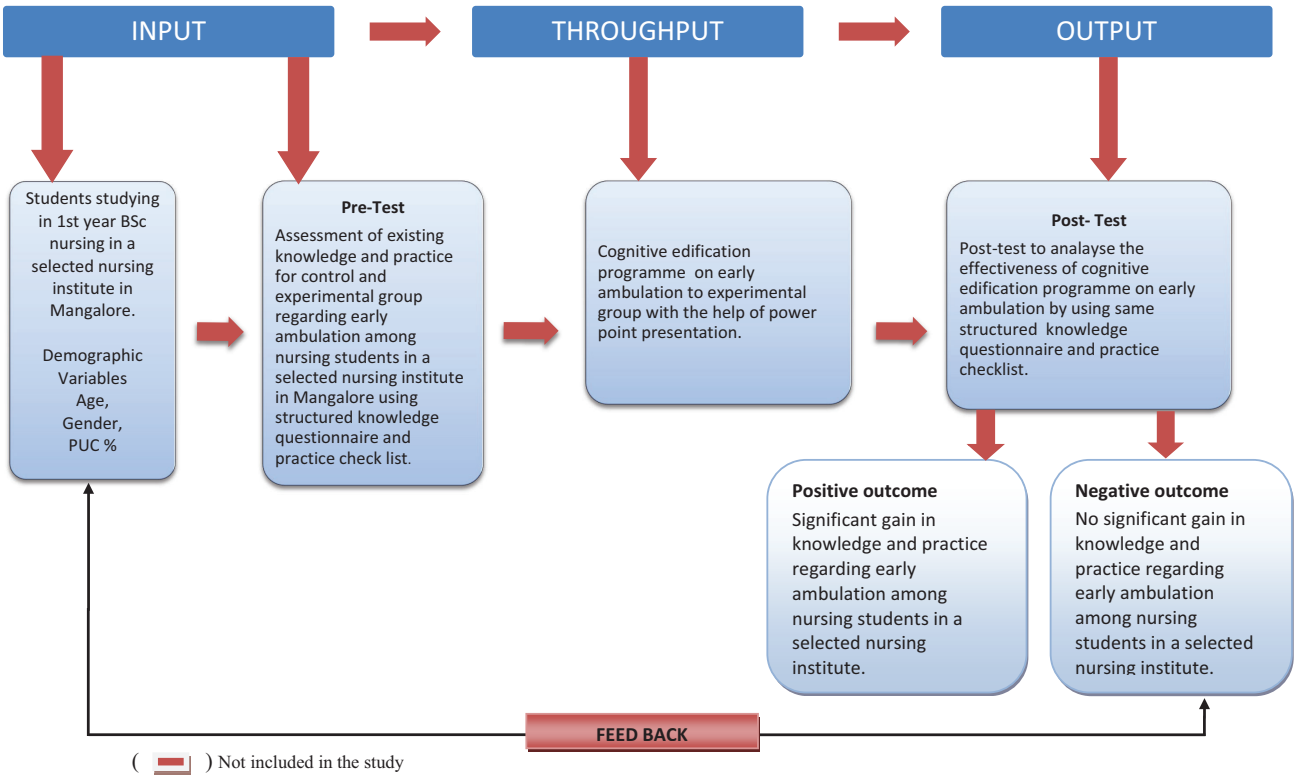

Figure 1: Modified Conceptual Framework Based on Ludwig Von Bertalanffy's General System Theory (1968)

Table 1: Level of knowledge regarding early ambulation before and after cognitive edification programme

Knowledge score interpretation	Control group (n=49)				Experimental group (n=50)			
	Pre-test		Post-test		Pre-test		Post-test	
	f	%	f	%	f	%	f	%
Poor knowledge	32	65	36	73	39	78	22	44
Adequate knowledge	17	35	13	27	11	22	22	44
Good knowledge	-	-	-	-	-	-	6	12

Table 2: Description of knowledge among the control and experiment group

Group	Pre-interventional knowledge				Post-interventional knowledge			
	Min	Max	Mean	SD	Min	Max	Mean	SD
Experimental (n=50)	1	11	5.76	2.15	2	13	7.57	3.04
Control (n=49)	1	10	6.39	2.34	2	10	5.76	2.27

Table 3: Difference in the knowledge before and after intervention within the experimental and control group analysed by using paired "t" test

Group	Mean difference	"t" value	'p' value
Experimental (n-50)	-1.816	3.660	0.001
Control (n-49)	0.632	1.286	0.205

't' Table value (49,0.05) = 1.684

participants and written informed consent taken from the eligible participants. 99 students were selected by using simple random sampling (lottery method) and pre-test and post-test were carried out for assessing the knowledge of nursing student on early ambulation. The pre-test was conducted on day 1 and after 7 days post-test was done to control group with the help of knowledge and reported practice using the same questionnaire and reported practice checklist.

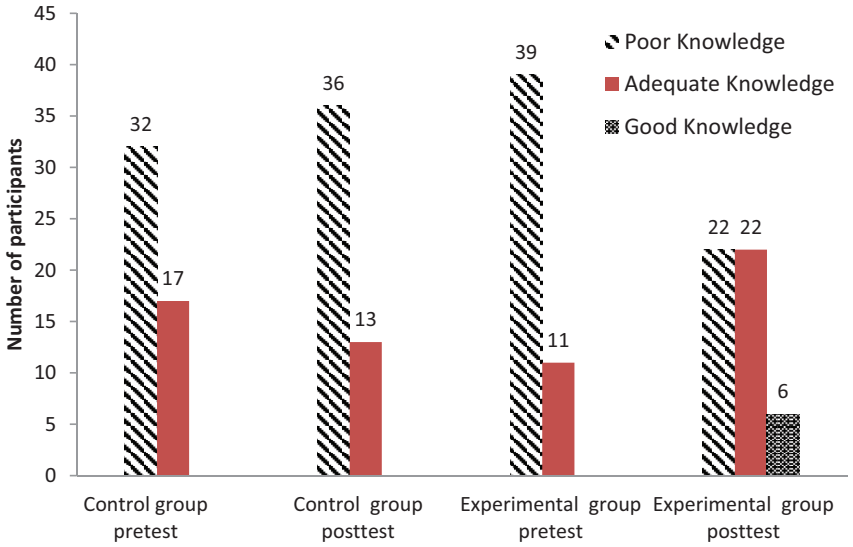

Fig 2: Differences in pre-test and post-test knowledge scores

Pre-test and cognitive edification programme on early ambulation were conducted on day 1 to the experimental group and after 7 days post-test was done to assess the knowledge and reported practice using the same questionnaire and practice checklist.

Results

Most of the nursing students in the experimental group (52%) were in the age group of 19 years, and in the control group (57.14%) were in the age group of 18 years. Majority of the students were females (90%) followed by 10 percent male in the experimental group and majority of the nursing students were females (83.67%) followed by 16.33 percent males in control group. Majority of the nursing students secured 71-80 percent (53.06%) in PUC.

Knowledge on Early Ambulation

At the time of pre-test in the experimental group most of the nursing students (22%) had an average level of knowledge, 78 percent of the nursing students had a poor level of knowledge (Table 1& Fig 2); post-test scores show that, most of the nursing students (44%) had average and poor level of knowledge. In the control group pre and post-test, most of the nursing students (65% & 73 %) had a poor level of knowledge on early ambulation. It indicates that cognitive edification programme had a role in improving knowledge level of nursing students regarding early ambulation.

At the time of post-test in the experimental group, 80 percent of the nursing students had an adequate practice score compared to the 42% of the control group. It indicates that cognitive edification programme had played a role in improving the reported practice of the nursing students regarding early ambulation.

Difference in knowledge between pre-and post-test among the groups

As per Table 2 and 3, the experimental group calculated t(49, 0.05) = 3.66 with 'p' value of 0.001 and calculated t(48, 0.05) = 1.286 with 'p' value 0.205 for the control group. It is evident that the calculated t value is more than the table value in the experimental group and the p-value is < 0.001. Hence there is a difference in the level of knowledge among nursing students before and after the cognitive edification programme on early ambulation. It indicates that cognitive edifica-

Table 4: Comparison of the knowledge between experimental and control group

Group (n=99)	Mean	SD	Mean difference	't' value	'p' value
Experimental	7.57	3.041	1.816	3.351	0.001
Control	5.76	2.269			

't' Table value (98,0.05) = 2

Table 5: Description of reported practice among control and experiment groups

Group	Pre-interventional Practice				Post-interventional practice			
	Min	Max	mean	SD	Min	Max	mean	SD
Experimental (n-50)	0	23	16.71	8.208	1	23	19.61	6.664
Control (n-49)	11	23	16.24	3.031	0	23	17.20	7.866

Table 6: Difference in the reported practice before and after intervention within the experimental and control group by using paired 't' test

Group	Mean difference	"t" value	'p' value
Experimental (n-49)	2.898	5.090	<0.001
Control (n-49)	0.959	0.842	0.404

't' Table value (49,0.05) = 1.684

tion programme is effective in increasing the level of knowledge among nursing students at 5 percent level of significance.

Comparison of the knowledge between experimental and control group by using independent 't' test

H2: There will be a significant difference in the post-interventional mean knowledge between the experimental and control group

It is evident that the calculated t value 't'(98, 0.05) = 3.351 with 'p' value of 0.001 is more than the table value (Table 4). Hence there is a difference in the knowledge score among nursing students before and after the cognitive edification programme on early ambulation. It indicates that cognitive edification program is effective in increasing the knowledge score among nursing students at 5 percent level of significance.

Difference in reported practice between pre- and post-test among the groups: As per table 5 and 6, the 'p value of the experimental group is less than 0.05 and in the control group is more than 0.05 (0.404) the research hypothesis is accepted at 0.05 level of significance. It is evident that the calculated t value is more than the table value in the experimental (p< 0.001). Hence there is a difference in the practice score among nursing students before and after the cognitive edification programme on early ambulation. It indicates that cognitive edification programme is effective in increasing the reported practice score among nursing students at 5 percent level of significance. So hypothesis H1 is accepted.

H2: There will be a significant difference in the post-interventional mean practice between the experimental and control group.

Table 7 shows there is no significant difference in mean practice value between the experimental and control group as the 'p' value (0.105) is more than 0.05 at 95 percent confidence interval.

Relationship between knowledge and reported practice scores by using Karl Pearson Correlation: As per Table 8, Karl Pearson's 'p' value is 0.004 which is less than 0.05, so there is a relationship between knowledge and reported practice. Karl Pearson's Correlation-coefficient value ranges between '-1' and '+1'. The table value ranges between 0 to +1, so a positive correlation was found between knowledge and reported practice. So, hypothesis H3 is accepted.

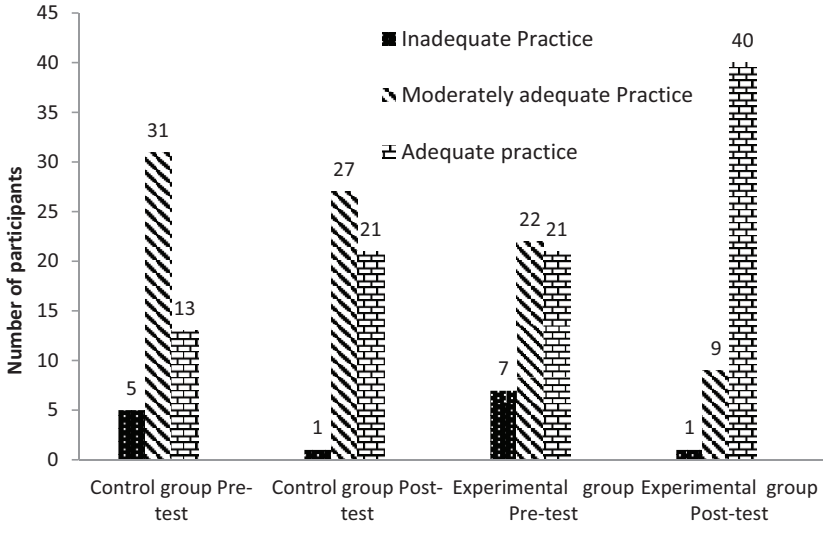

Figure 3: Differences in pre-test and post-test reported practice scores

Discussion

The present study reveals that at the time of pre-test in the experimental group most of the nursing students (22%) had an average level of knowledge, 78 percent of the nursing students had a poor level of knowledge and post-test scores show, most of the nursing students (44%) had average and poor level of knowledge.

The findings of the present study are comparable to those of Chatterley. Laurie, to improve the nurse knowledge of early mobilisation of the post-operative patient by using power point presentation in Rhode Island College. 25 nurses participated in the project in a pre/post survey which includes knowledge and opinion based-question. The post-survey score increased by 16.8% than the pre-survey score. Nurses'

Table 7: Comparison of the reported Practice between experimental and control group by using independent 't' test

Group (n=98)	Mean	S.D	Mean difference	't' value	'p' value
Experimental	19.21	6.664	2.408	1.635	0.105
Control	17.20	7.866			

't' Table value (98,0.05) = 2

Table 8: Correlation between knowledge and reported practice scores

Variables	Karl Pearson's Correlation	P Value
Knowledge	0.286	0.004
Reported practice		

opinion of the importance of mobilization improved from pre-survey to post-survey (=8 pre; =9.44 post). Barriers such as pain and a time of early mobilisation are noted therefore a minimal change in nurses' opinion towards this barrier from pre-survey to post-survey. Thus, the study concludes that educational in-services help the nurse to communicate and document mobilisation.

Another study conducted among 40, 2nd year BSc nursing students in selected Nursing Colleges at Indore (M.P.) The tool comprised of a self-structured questionnaire. The pretest knowledge scores showed that majority of BSc Nursing 2nd year Students had inadequate knowledge (25%) and 62.5% had moderate knowledge and only 12.5 percent had adequate knowledge regarding postoperative exercises for the client undergoing cardiac surgery. A planned teaching program on postoperative exercises for clients undergoing cardiac surgery was developed and administered on BSc Nursing 2nd-year students. Post-test scores showed a considerable increase in knowledge levels 45 percent students had moderate and 55 percent had adequate knowledge.

Nursing Implications

Nursing student should be aware of the needs of the post-operative patient. The knowledge they received will help the patient to take care of themselves and help in detecting and managing the complication.

Nurse administrator should organise in-service education and continuing education programme for nurses on early ambulation.

The present study is only an initial intervention to assess the knowledge and reported practice of the nursing students on early ambulation. It emphasises how research will improve the quality of nursing care by inculcating adequate knowledge.

Recommendations

- The study can be replicated on a larger sample for generalisation of the findings.
- A study may be conducted to assess the barriers of practicing early ambulation of nurses among post-operative patients.

Conclusion

Certain information which is being given as basic in the first year of the nursing training programme will not only enhance the knowledge, it also creates wisdom for the students, which in turn goes to be utilised lifelong in their carrier. Early ambulation is an important activity for a patient who is admitted to a hospital, which reduces the complications and the hospital stay.

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