

A study to assess the effectiveness of the nurse led care on post-operative recovery pattern among patients posted for surgery at AVMC&H Kirumampakkam, Puducherry and Maruthi gastro care hospital, Cuddalore

¹Sasikala. R, ²A. Merlin felixia, ³M. Monica, ⁴P. Nalini

¹Associate professor, Vinayaka Mission's College of Nursing, VMRF (DU), Puducherry.

^{2,3,4} B.Sc. Nursing students, Vinayaka Mission's College of Nursing, VMRF (DU), Puducherry.

Email :- ¹rojasasi69@gmail.com, ²felixiadoss0205@gmail.com, ³monicamariyadoss2001@gmail.com, ⁴naliniammu2000@gmail.com

Abstract: Post-operative recovery refers to returning to daily life and minimizing symptoms including weariness, discomfort, nausea, and vomiting while improving the body's level of function. The aim of the study was to assess the effectiveness of the nurse led care on post-operative recovery pattern among patients posted for surgery. An experimental research design of 40 patients' undergone elective surgery with 20 experimental group and 20 control group by convenience sampling technique. A demographic variables, health profile variables and structured knowledge questionnaire was administered. Regarding ambulation, in experimental group, adequate knowledge was 11(55%), moderate knowledge was 2(10%) and inadequate knowledge was 7(35%), whereas in control group, adequate knowledge was 5(25%), moderate knowledge was 4(20%) and inadequate knowledge was 11(55%). Regarding deep breathing and coughing exercise, in experimental group, adequate knowledge was 9(45%), moderate knowledge was 10(50%) and inadequate knowledge was 1(5%) whereas in control group adequate knowledge was 1(5%), moderate knowledge was 7(40%), inadequate knowledge was 11(55%). The mean difference score was 6.80 was found on the 5th the post-operative day, the calculated student independent 't' value was 7.731 with $p=0.0001$ was found to be statistically significant. The nurse led care was effective in prevention of pulmonary complications and rapid post-operative recovery.

Key Words: Post-Operative Recovery, Ambulation, Deep Breathing, Coughing, Pulmonary, Puducherry.

1. INTRODUCTION:

Post-operative recovery refers to returning to daily life and minimizing symptoms including weariness, discomfort, nausea, and vomiting while improving the body's level of function. Regaining control over one's physical, psychological, social, and habitual functions is referred to as post-operative recovery. The treatment given following surgery is known as post-operative recovery. The length of the ICU stay and rate of recovery will vary depending on the type of surgery, health history, and age. ⁽¹⁾

The post-operative pulmonary problems such atelectasis, pneumonia, respiratory failure, and worsening of an underlying chronic lung disease will occur. In addition to walking, deep breathing exercises, and nurse-led care, post-operative problems can be minimized. The essential energy channels are cleaned and renewed through deep breathing and coughing exercises. There are many different forms of deep breathing exercises, including diaphragmatic breathing and pursed lip breathing. Exercises that involve deep breathing and coughing help the pulmonary condition and reduce the risk of postoperative respiratory problems. It encourages muscle relaxation and enhances the strength, endurance, and coordination of the respiratory muscles. Coughing is necessary to clear respiratory blockages and maintain healthy lungs. ⁽²⁾

Early ambulation is a popular and crucial part of post-operative treatment after surgery. With evidence of improvements in pulmonary functioning, upright-position mobility seems to be most beneficial in the early post-operative period. There are several risk-reduction techniques that involve early ambulation, which is done as soon as possible following surgery, preferably within 24 hours. Early ambulation is a post-operative care strategy in which patients get out of bed and perform brief, light activities like sitting, standing, or walking 3-6 times each day as soon as feasible following a surgery. ⁽³⁾

The type and extent of the surgical procedure, the patient's nutritional and immunological status, their baseline psychological profile, as well as any associated medical comorbidities like preexisting pain and medications used to treat pain, all affect how long the postoperative recovery period lasts and how painful it. ⁽⁴⁾

After surgery, the body's processes are slowed down. Exercises like ambulation and deep breathing boost blood flow and hasten wound healing. A person who is unable to walk is more likely to experience increased constipation, weakness, and pain, as well as a greater risk of infections and pneumonia. Early ambulation in particular has been linked to a decrease in post-operative problems of pneumonia. ⁽⁵⁾ So, investigator selected this study to promote post-operative recovery pattern, by ambulation training and deep breathing and coughing exercises.

2. MATERIALS & METHODS:

Design: An experimental research design was adapted for the present study.

Sample Size: A sample of 40 patients undergone elective surgery in that 20 were in an experimental group and 20 were in control group.

Sampling Technique: Convenient sampling technique was used to select the sample.

Data collection Procedure: The formal setting permission was obtained from AVMC&H, Puducherry and Maruthi gastro care Hospital, Cuddalore to conduct a study. The demographic variables and health profile were collected. The structured knowledge and ambulation, deep breathing and coughing exercise questionnaire was obtained. In experimental group ambulation, deep breathing and coughing exercise for 10 to 15 minutes were demonstrated before the day of operation and in control group received the routine nursing care. After the surgery subjects were monitored by using post-operative recovery checklist on 2nd and 5th post-operative day.

3. RESULTS:

Frequency and percentage distribution of demographic variables of patient's undergone elective surgery. In experimental group majority 9(45%) aged >50 years, 13(65%) belongs urban, 17(85%) Hindus, 13(65%) female, 17(85%) married, 9(45%) did high school education, 6(30%) government employee and doing business and 10(50%) income of <10000. In control group majority 4(20%) aged >50 years, 18(90%) belongs urban, 16(80%) Hindus, 10(50%) were male and female, 18(90%) married, 4(29%) did primary education, 7(35%) government employee and homemaker/unemployed/retired and 7(35%) income of <10000.

Frequency and percentage distribution of health profile variables of patients after elective surgery. In experimental group, 20(100%) had no previous attack of pneumonia, respiratory disorder and had taken any medication or therapy like bronchodilator, 18(90%) had not undergone any previous surgery and 19(95%) had not been vaccinated with pneumococcal vaccine. Whereas in the control group, 20(100%) had no previous attack of pneumonia and had not been vaccinated with pneumococcal vaccine, 16(80%) had no respiratory disorder previously, 14(70%) had not undergone any surgery previously and 18(90%) had not taken any medication or therapy like bronchodilator.

The level of knowledge on ambulation and deep breathing and coughing exercise among patients after elective surgery in the experimental and control group. Regarding ambulation, in experimental group, adequate knowledge was 11(55%), moderate knowledge was 2(10%) and inadequate knowledge was 7(35%), whereas in control group, adequate knowledge was 5(25%), moderate knowledge was 4(20%) and inadequate knowledge was 11(55%). Regarding deep breathing and coughing exercise, in experimental group, adequate knowledge was 9(45%), moderate knowledge was 10(50%) and inadequate knowledge was 1(5%) whereas in control group adequate knowledge was 1(5%), moderate was 7(40%), inadequate was 11(55%) (**Figure 1**).

Effectiveness of nurse led care between experimental and control group after elective surgery. In 2nd post-operative day the mean score and standard deviation were 8.85±3.92, in control group whereas in experimental group the mean score and standard deviation were 10.75±2.81. On the 5th post-operative day, the mean score and standard deviation were 8.70±3.70 in control group, whereas in Experimental group the mean score and standard deviation were 1.90±1.33. The mean difference score was 1.90 was found on 2nd post-operative day, the calculated student independent 't' test value was 1.761 with the p=0.087 was not statistically significant. Whereas the mean difference score was 6.80 was found on the 5th post-operative day, the calculated student independent 't' value was 7.731 with p=0.0001 was found to be statistically significant, which clearly infers that nurse led care on post-operative recovery among patients after elective surgery was found to be effective in improving the level of recovery among patients in the experimental group than the control group (**Table 1**).

Figure 1: Percentage distribution of level of knowledge on ambulation and deep breathing and coughing exercise among patients after elective surgery in the experimental and control group

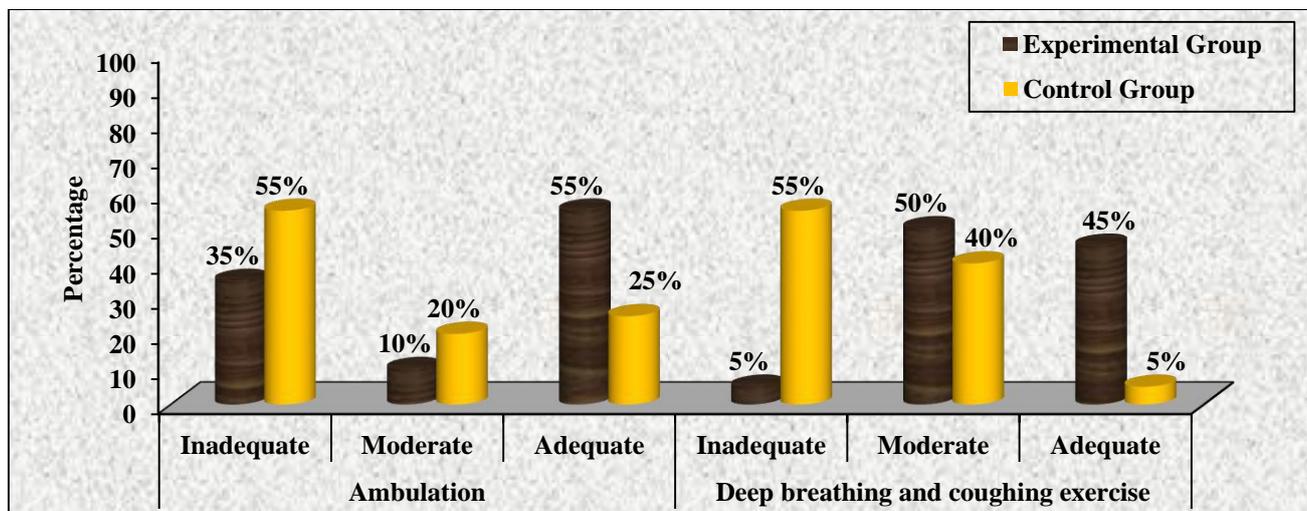


Table 1: Effectiveness of nurse led care between experimental and control group after elective surgery

Post-operative day	Experimental Group		Control Group		Mean Difference	Student Independent 't' Test Value
	Mean	S.D	Mean	S.D		
2 nd day	10.75	2.81	8.85	3.92	1.90	t = 1.761 p=0.087, N.S
5 th day	1.90	1.33	8.70	3.70	6.80	t = 7.731 p=0.0001, S***

***p<0.001, S – Significant, N.S – Not Significant

The frequency and percentage distribution of post-operative recovery and comparison between Experimental and Control group after elective surgery. In experimental group post-operative recovery was observed during post-operative day, normal was (nil), mild was 1(5%), moderate was 9(45%) and severe was 10(50%). Whereas in the 5th post-operative day normal was 3(15%), mild was 17(85%) both moderate and severe was (nil) which shows significant improvement. In the control group during 2nd and 5th post-operative day there was no normal post-operative recovery mild was 7(35%), moderate was 6(30%) and severe was 7(35%) Which shows no change and depicts no improvement (Table 2).

Table 2: Frequency and percentage distribution of post-operative recovery and comparison between Experimental and Control group after elective surgery

Group	Level of post-operative recovery	2 nd day		5 th day	
		F	%	F	%
Experimental Group	Normal (0)	0	0	3	15.0
	Mild (1 – 6)	1	5.0	17	85.0
	Moderate (8 – 10)	9	45.0	0	0
	Severe (10 – 15)	10	50.0	0	0
Control Group	Normal (0)	0	0	0	0
	Mild (1 – 6)	7	35.0	7	35.0
	Moderate (8 – 10)	6	30.0	6	30.0
	Severe (10 – 15)	7	35.0	7	35.0

There was no significant association of knowledge regarding ambulation, deep breathing and coughing exercise between both the groups.

The demographic variable occupational status ($\chi^2=9.542$, $p=0.049$) had shown statistically significant association of post-operative recovery on 5th post operative day among patients after elective surgery at $p<0.05$ level.

4. DISCUSSION:

An experimental research design was used to select the sample; Total 40 patients' undergone elective surgery with 20 experimental group and 20 control group were selected by convenience sampling technique. The aim of the study was to assess the effectiveness of the nurse led care on post-operative recovery pattern among patients posted for surgery.

The first objective was to assess the knowledge on nurse led care on post-operative recovery pattern among patients posted for surgery:

The level of knowledge on ambulation and deep breathing and coughing exercise among patients after elective surgery in the experimental and control group. Regarding ambulation, in experimental group, adequate 55%, moderate 10% and inadequate knowledge 35%, whereas in control group, adequate 25%), moderate 20% and inadequate knowledge 55%. Regarding deep breathing and coughing exercise, in experimental group, adequate 45%, moderate 50% and inadequate knowledge 5% whereas in control group adequate 5%, moderate 40% and inadequate knowledge 55%.

The supported study was conducted by Seher unver et al. (2018) shows 51.5% of the patients engaged in deep breathing exercises after receiving instruction on them from 56.2% of the patients. A total of 60.3% of the patients had nursing students as their teachers. Additionally, after surgery, 54.8% of them acquired this education. ⁽⁶⁾

The second objective was to evaluate the effectiveness of nurse led care on post-operative recovery pattern among patients posted for surgery:

Effectiveness of nurse led care between experimental and control group after elective surgery. In 2nd post-operative day the mean score and standard deviation were 8.85 ± 3.92 , in control group whereas in experimental group the mean score and standard deviation were 10.75 ± 2.81 . On the 5th post-operative day, the mean score and standard deviation were 8.70 ± 3.70 in control group, whereas in Experimental group the mean score and standard deviation were 1.90 ± 1.33 . The mean difference score was 1.90 on 2nd post-operative day, the calculated student independent 't' test value was 1.761 with the $p=0.087$ was not statistically significant. Whereas the mean difference score was 6.80 on the 5th post-operative day, the calculated student independent 't' value was 7.731 with $p=0.0001$ was found to be statistically significant, which clearly infers that nurse led care on post-operative recovery among patients after elective surgery was found to be effective in improving the level of recovery among patients in the experimental group than the control group.

The supported study was conducted by Elisabeth Westerdahl et al., (2015) revealed that regarding the relative change in lung function, there was a significant difference between the breathing group and the control group, favouring the breathing group (vital capacity: $P 0.043$; forced vital capacity: 0.025). ⁽⁷⁾

Hypothesis 1: There is significant improvement in pulmonary and respiratory function after deep breathing and coughing exercises and ambulation among patients undergoing elective surgery. Hence hypothesis 1 proved.

The third objective was to compare the post-operative recovery between 2nd post-operative day and 5th post-operative day:

The comparison between Experimental and Control group after elective surgery. In experimental group post-operative recovery was observed during 2nd post-operative day, normal was (nil), mild was 5%, moderate was 45% and severe was 50%. Whereas in the 5th post-operative day normal was 15%, mild was 85% both severe and moderate was (nil) in which shows significant improvement. In the control group during 2nd and 5th post-operative day there was no normal post-operative recovery mild was 35%, moderate was 30% and severe was 35% Which shows no change and depicts no improvement.

The fourth objective was to associate the knowledge with demographic variables:

There was no significant association of knowledge regarding ambulation, deep breathing and coughing exercise between both the groups. Hypothesis 2: There is no significant association between knowledge with selected demographic variables. Hence hypothesis 2 not proved.

The fifth objective was to associate the post-operative recovery on 5th post-operative day with demographic variables:

There was a significant association of post-operative recovery on 5th post-operative day of occupational status ($\chi^2=9.542$, $p=0.049$).

5. CONCLUSION:

The study concluded that nurse led care was effective in prevention of pulmonary complications and rapid post-operative recovery.

REFERENCES:

1. Allvin R, Ehnfors M, Rawal N, Idvall E. Experiences of the postoperative recovery process: an interview study. *Open Nurs J.* 2008; 2:1-7.
2. Kelkar KV. Post-operative pulmonary complications after non-cardiothoracic surgery. *Indian J Anaesth.* 2015 Sep; 59(9):599-605.
3. Stethen TW, Ghazi YA, Heidel RE, Daley BJ, Barnes L, Patterson D, McLoughlin JM. Walking to recovery: the effects of missed ambulation events on postsurgical recovery after bowel resection. *J Gastrointest Oncol.* 2018 Oct; 9(5):953-961.
4. Nicolas Demartines et al. Postoperative Recovery. *Essentials of Pain Medicine.* Fourth Edition, 2018.
5. Orfanos P, Ellis E, Johnston C. Effects of deep breathing exercise and ambulation on pattern of ventilation in post-operative patients. *Aust J Physiother.* 1999; 45(3):173-182.
6. Unver S, Kivanc G, Alptekin HM. Deep breathing exercise education receiving and performing status of patients undergoing abdominal surgery. *Int J Health Sci (Qassim).* 2018 Jul-Aug; 12(4):35-38.
7. Westerdahl E, Wittrin A, Kanahols M, Gunnarsson M, Nilsagard Y. Deep breathing exercises with positive expiratory pressure in patients with multiple sclerosis - a randomized controlled trial. *Clin Respir J.* 2016 Nov; 10(6):698-706.