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A STUDY TO ASSESS THE EFFECTIVENESS OF “I COUGH” AMONG PRE OPERATIVE ABDOMINAL SURGERY PATIENTS TO REDUCE POST OPERATIVE PULMONARY COMPLICATIONS AT ASHWIN HOSPITAL, COIMBATORE

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ABSTRACT

Patients undergoing major abdominal surgery will have higher incident of post-operative pulmonary complications. In this context, “I COUGH” has its significance, thus enhancing the scope of nursing. **Objectives:** 1) To teach and demonstrate “I COUGH” among pre-operative abdominal surgery patients in experimental group. 2) To assess the respiratory status of patients subjected to abdominal surgery in experimental and control group pre-operatively. 3) To assess the respiratory status of patients undergoing abdominal surgery in experimental and control group post-operatively. 4) To evaluate the post-operative respiratory status, between control group and experimental group. 5) To associate the respiratory status score, with selected demographic variable in experimental group. **Methodology:** The conceptual framework of the study was Rosen Stock’s health belief model. The study made use of experimental approach, a subtype of quantitative approach. Non-equivalent control group, pre-test post test design for assessing the respiratory status and post-test only control group design was used to assess the respiratory status. Non-probability purposive sampling technique was used to select 40 samples, out of which 20 were in control group and the rest of the samples were considered as experimental group. Observational checklist was used to assess the respiratory status, standardized order set was used to assess the effectiveness of “I COUGH” method. Pre-operative teaching “I COUGH” was provided on the basis of review of literature and experts opinion. Descriptive and inferential statistics were used to analyze the data. **Conclusion:** The findings of the study revealed that: The respiratory status of the patients who received pre-operative teaching on “I COUGH” was significantly improved that those who did not receive the pre-operative teaching. The risk of developing post-operative pulmonary complications of the patients who received pre-operative teaching “I COUGH” was significantly less than those who did not receive the pre-operative teaching on “I COUGH”.

KEYWORDS

Effectiveness, Pre-operative teaching, Post-operative exercise, Post-operative pulmonary complications and I COUGH.

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INTRODUCTION

Health is a state of complete physical, mental and social well-being and not merely an absence of disease or infirmity. (WHO, 1948) Health is the level of functional or metabolic efficiency of a living organism. And this health is being maintained by diet, exercise and day to day activities. The goal of

entire medical fraternity is maintaining sound health and attainment of health for all by the year 2015A.D. Whereas Disease is an abnormal condition, a disorder of a structure or function, that affects part or all of an organism. According to Lewis (2008) Diseases can be cured by either medical intervention or surgical interventions. Surgery can be elective in which it is carefully planned and anticipated. The need for surgery may sometimes arise with sudden and unanticipated urgency and is called an emergency surgery.

Surgical procedure can disrupts the patient's personal, professional, economic life, mental and the physical body. For surgery when a client is under general anesthesia the lungs do not ventilate fully. The discomfort of an abdominal or thoracic incision inhibits inspiration; the abdominal pain induces voluntary and reflex muscle spasm affecting primarily the abdominal muscles and the diaphragm. This leads to more rapid but shallow respirations, poorly expanding the lower lobes of the lungs. (Khan, 2009).

So the nursing interventions should be directed to prevent complications and the patient can return to the highest level of possible functioning. Pre-operative information helps to lessen anxiety, reduce the amount of anesthesia needed, decreases post-surgical complications and helps for rapid wound healing.

Pre-operative teaching on post-operative exercises is shown to have the highest level of functioning possible among the abdominal surgery patients. Therefore the nursing practice is patient oriented rather than task oriented. Patient's education is the best way to prevent post-operative complications and the nurse's are having high responsibility to provide patient's education.

During my investigation clinical experience in surgical wards, I found pre-operative teaching regarding post-operative exercise was not given importance in nursing care, many patients developed post-operative complications which motivated the researcher to do a study on effectiveness of pre-operative teaching on post-operative exercises to prevent post-operative pulmonary complications among abdominal surgery patients¹⁻⁸.

The present study is concerned about the effectiveness of "I COUGH" among pre-operative abdominal surgery patients to reduce post-operative pulmonary complications at Ashwin Hospital, Coimbatore.

The acronym I COUGH stands for I Incentive Spirometry

Deep breathing exercises will help keep your lungs healthy and prevent lung problems. This breathing exercise needs to be done 10 times each hour.

C Cough and Deep Breathe

After surgery taking deep breaths and coughing helps to clear your lungs. This helps the lungs do the vital job of delivering oxygen to the tissues in your body.

O Oral Care

Brushing your teeth and using mouthwash twice a day keeps your mouth clean from germs.

U Understanding Patient Education

Is important for you and your family to take an active part in your recovery. We want your pain to be controlled so you can take deep breaths, cough, get out of bed for a walk and be sitting up at mealtime.

G Get out of Bed

Walking will help clear secretions from your lungs, help your circulation and help to regain your strength.

H Head of Bed Elevated

It is important to keep the head of the bed elevated between 30-45 degrees. Being in an upright position after your operation will help with your breathing⁹⁻¹².

OBJECTIVES¹³⁻¹⁹

1. To teach and demonstrate "I COUGH" among pre-operative abdominal surgery patients in experimental group.
2. To assess the respiratory status of patients subjected to abdominal surgery in experimental and control group pre-operatively.
3. To assess the respiratory status of patients undergoing abdominal surgery in experimental and control group post-operatively.

4. To evaluate the post-operative respiratory status, between control group and experimental group.
5. To associate the "I COUGH" method, with selected demographic variable in experimental group.

NULL HYPOTHESIS

There is no significant relationship between pre-operative teaching on post operative exercises "I COUGH" in selected post-operative complications.

CONCEPTUAL FRAME WORK

Conceptual framework for this was derived from Rosenstocks, Backer and Maimans Health Belief Model (1974). It provides a way of understanding and predicting how the client will behave in relation to their health and how they comply with health care therapies. Use of this model is based on a person's perception of the susceptibility to an illness, the seriousness of illness, and the benefits of taking action to prevent the illness.

The health belief model helps to understand factors influencing client's

Perceptions, beliefs and behaviors to plan care that will most effectively assist

Clients in maintaining or restoring health and preventing illness.

The first component in the model involves the person's perception of susceptibility to an illness. In this study first component includes the person's perception regarding seriousness of abdominal surgery and susceptibility to various pre-operative complications.

The second component deals with individual's perception of the seriousness of the illness. This perception is influenced and modified by demographic variables, psychological factors, perceived threats of illness and uses to action. In this present study the second component includes individual's perception of the seriousness of post-operative pulmonary complications such as pneumonia, aspirational pneumonitis, atelectasis, acute respiratory syndrome. This perception was influenced and modified by demographic variables such as age, type of work, weight, educational status,

personal habits such as smoking, consumption of alcohol, using snuff and tobacco.

This cue to action is the pre-operative teaching on post-operative exercise (incentive spirometer, coughing and deep breathing exercises, oral care, understanding patient and family, get out of bed, head end elevation) given by the researcher.

The researcher assessed the pre-operative respiratory status for the subjects of experimental and control group and the pre-operative teaching regarding post-operative exercises was given to the experimental group on the day before surgery.

The third component, the likelihood that a person will take action results from person's perception of the benefits of and barriers to take action. Preventive action may include lifestyle changes, increased adherence to medical therapies or a search for medical advice or treatment. In this study likelihood of action, the subjects of the subjects of the experimental group perceived the benefits of post-operative exercise such as earlier recovery, lung expansion, draining of secretions, prevention of infection, prevention of respiratory complications, involvement of family members in the therapy more than perceived barriers such as pain, drowsiness because of anesthesia, sedative effect, unwillingness, lack of knowledge and fear of breakdown of sutures.

In the experimental group the perceived benefits of doing post-operative exercises were more on the perceived barriers because of the pre-operative teaching on post-operative exercise, hence the subjects in the experimental group did post-operative exercise and the post-operative exercise complications were relieved. In the control group, since they did not receive any pre-operative teaching on post-operative exercise, more than the perceived benefits, leading to post-operative complications, as evidenced by the post-operative assessment of respiratory status consecutively for five days.

CONCEPTUAL FRAME WORK FIG IN SEPARATE FOLDER

Material and Method

Experimental approach, a sub type of quantitative approach was used for the present study. Quasi-

experiments involve the manipulation of an independent variable that is the institution of an intervention. This study is aimed at evaluating the effect of pre-operative teaching on post-operative exercise "I cough" among abdominal surgery patients.

Non - equivalent control group pre-test post-test design as a sub type of quasi -experimental research design was adopted for assessing the respiratory status before and after pre-operative information.

E	O ₁	X	O ₂	O ₃	O ₄	O ₅	O ₆
C	O ₁		O ₂	O ₃	O ₄	O ₅	O ₆

E - Experimental group

C - Control group

X - Intervention by CD Assisted teaching on post-operative teaching.

O₁ - Assessment of respiratory status before pre-operative teaching.

O₂ O₆ - Assessment of respiratory status post operatively for five consecutive days.

The study was conducted in surgical wards of Ashwin Hospital, Coimbatore. It is a 150- bedded multi - specialty hospital and it provides comprehensive care to all. In patient department comprises of nearly 50 beds. On an average 50 – 60 patients attend out -patient department. The population of the study includes all the patients who were undergone abdominal surgery in Ashwin Hospital during the data collection period of four weeks. The selected sample size was 40, out of which the first 20 patients were considered as control group and the rest as experimental group. Non-probability purposive sampling technique was used for selecting the samples. The investigator got information of the samples and if the samples met the inclusion criteria, they were included. The first 20 samples were considered as control group and the rest of the samples were considered as experimental group. SELECTION CRITERIA BASED ON

Inclusion Criteria

- Patients who were in the age group between 20 – 50 years.
- Patients undergoing abdominal surgery for first time.
- Patients undergoing abdominal surgery through open laprotomy.

- Patients who were able to understand either Tamil or English.
- Patients who were willing to participate.

Exclusion Criteria

- Patients who are receiving immune suppressive drugs.
- Patients who are having systemic disorder.
- Patients who are undergoing emergency surgery.
- Patients who discontinued the exercises.
- Disturbance in the sensory perception.
- Patients those who are paralyzed.

RESULTS AND DISCUSSION

This is a quasi- experimental study intended to determine the effectiveness of "I COUGH" among pre-operative teaching on post-operative exercise and to prevent post-operative pulmonary complications of patients undergoing abdominal surgery.

Pre-operative teaching of incentive spirometry, coughing and deep breathing, reduce the post-operative complication. (Aeran, 2010).

The present study was designed to study on 40 patients, out of which 20 were in control group and the remaining was in experimental group. Due to pain, sedative effect, lack of knowledge, fear of breakdown of suture, drowsiness, patients are failed to do the exercise in post-operative period. The major results of the study were discussed according to the objectives as follows.

The first objective was to teach and demonstrate "I COUGH" among pre-operative abdominal surgery patients in experimental group.

In this study investigator taught and demonstrated "I COUGH" method to patients who were subjected to abdominal surgery, in the pre-operative period. In this each subject were taught with video assisted teaching.

The second objective was to assess the respiratory status of patients subjected to abdominal surgery in experimental and control group pre operatively.

In this study investigator assessed the respiratory status of each subject pre operatively. Before pre-operative teaching by using observation checklist, the respiratory status was assessed, which includes

temperature, pulse, respiration, rate, rhythm, symmetrical movement of chest, breath sound, etc.

The mean score of the experimental and control group was (24.5) and (23.5). The obtained “t” value “1.367” was less than the table value (1.960). This finding revealed that there is homogeneity between experimental and control group before providing pre-operative teaching. And also this showed that pre operatively, there were no respiratory related problems among the patients in both groups.

The third objective of the study was to assess respiratory status of the patients subjected to abdominal surgery in experimental and control group post operatively.

To assess the respiratory status of subjects, observational checklist of 34 questions were used. And the mean score of the experimental group was ‘30.6’ the mean score of the control group was ‘24.35’. The obtained ‘t’ value ‘10.85’ was significant at 0.05 level ($p > 0.05$)

The investigator found that the study finding implies that pre-operative teaching was significantly high in improving the respiratory status of the experimental group. The mean respiratory complication score of experimental group (11.3) was less than the control group (13). The obtained ‘t’ value was significant. So the pre- operative teaching of ‘I cough’ was effective in reducing post-operative pulmonary complications.

The mean respiratory complication score of experimental group (5.6) was more than the control group. The obtained ‘t’ value was significant. So the pre-operative teaching of exercise was effective in reducing the post-operative chest complications.

The fourth objective is to evaluate the post-operative respiratory status, between control group and experimental group. The respiratory score of the experimental group is (24.35) lower than the mean respiratory status of the control group (30.6): the obtained ‘t’ value 10.85 was significant at 0.05 level ($P < 0.05$)

The investigator found that there was a significant difference in post-operative exercise received, between experimental and control group. The pre-operative teaching ‘I cough’ on post-operative exercise was found to be effective in improving the post-operative respiratory status of the experimental

group. Similar study findings were consistent with Mecker (2006). In their study they revealed that the post-operative exercise enhances the respiratory status of the individual who has received it.

To assess the respiratory complication the investigator used interview schedule, which was prepared by the investigator, the mean score of experimental group is (11.3) was less than the control group (13). The obtained ‘t’ value 2.54 at df (39) was significant at 0.05 level. It reveals that the pre-operative teaching of coughing and deep breathing exercise was effective in reducing the post-operative chest complications among patients in experimental group.

The investigator found that there was a significant difference between the experimental and control group ($t = 11.85$, $p > 0.05$). Similar study findings, was seen in Prince and Carol (2007) study prevention of pulmonary complications after abdominal surgery.

The fifth objective was to associate the respiratory status scores of patients after abdominal surgeries with selected demographic variables. The demographic characteristics namely age, sex, education, occupation, family income, personal habits, height and weight were associated with post test score of respiratory status.

There was significant association of height with post test score of respiratory status. All other variables showed no significant association with post test score of respiratory status.

The present study was supported by Quasi experimental study conducted by Oulton (2006) on fifty patients admitted in the post-operative ward, to assess the effectiveness of post-operative exercise after abdominal surgeries. The findings revealed that patients with post-operative complications experienced a significant reduction in the post-operative pulmonary complication after performing post op exercise

Table No.1 shows that the mean score of experimental and control group was 24.5 and 23.5. The obtained ‘t’ value 1.367 was less than the table value (1.960). This finding revealed that there is homogeneity exists among experimental and control group before providing pre-operative teaching.

Table No.2 shows that the mean score of respiratory status after the abdominal surgery of experiment group was 24.35 and that of control group was 30.6. The calculated “t” value 10.85 is greater than the table value (1.960). It shows that pre-operative teaching was found to be effective in improving the post-operative respiratory status of experimental group

Table No.3 shows that the post test score of respiratory complication after the abdominal surgery in experiment group was 11.3 and that of control group was 13. The calculated “t” value 2.54 was significant at 39 degrees of freedom and at 0.05 level of significance, which is greater than the table value (1.960). It shows that pre-operative teaching was found to be effective in preventing the post-operative pulmonary complications.

Table No.1: Description about Respiratory Status of Subjects Between Experimental and Control Group. ‘t’ test for mean difference in the respiratory status of subjects between the experimental and control group before surgery

S. No	Group	n	Mean	S.D	‘t’ value
1	Experimental	20	24.5	2.8	.367*
2	Control	20	23.5	1.5	

*Significance at 0.05 level

Table No.2: Distribution of Statistical Value of Respiratory Status of Subjects between the Experimental and Control Group after Abdominal Surgery

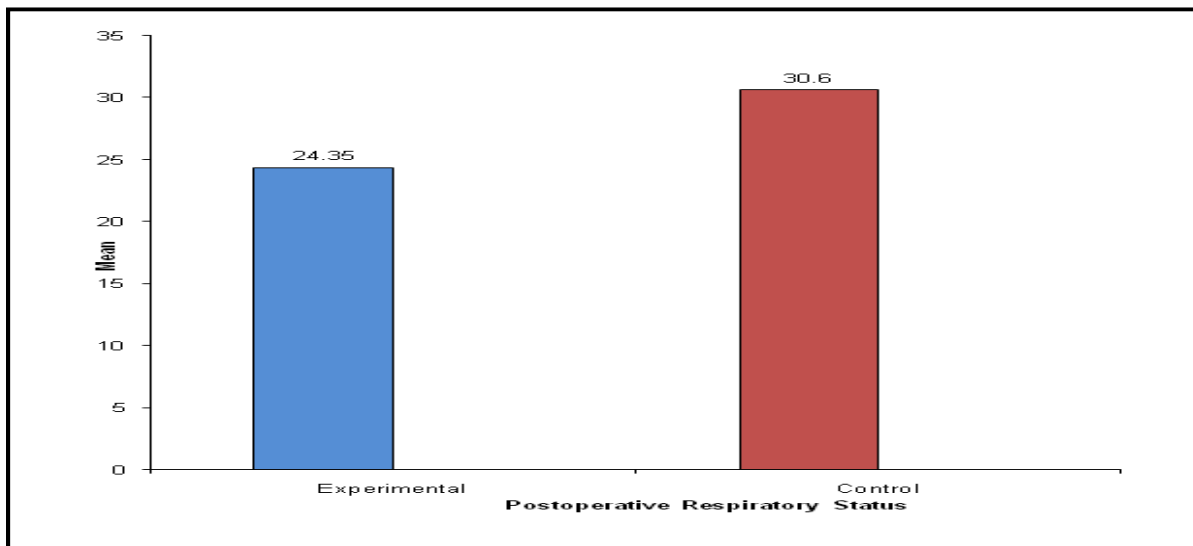
S. No	Group	n	Mean	S.D	‘t’ value
1	Experimental	20	24.35	1.66	10.85*
2	Control	20	30.6	1.97	

*Significance at level 0.05 level

Table No.3: Comparison of Post Test Score of Respiratory Complication of Subjects between Experimental Group and Control Group. The ‘t’ test for the mean difference of subjects, respiratory complication between experimental group and control group

S. No	Group	n	Mean	S.D	‘t’ value
1	Experimental	20	11.3	1.71	2.54*
2	Control	20	13	1.94	

*Significance at level 0.05 level



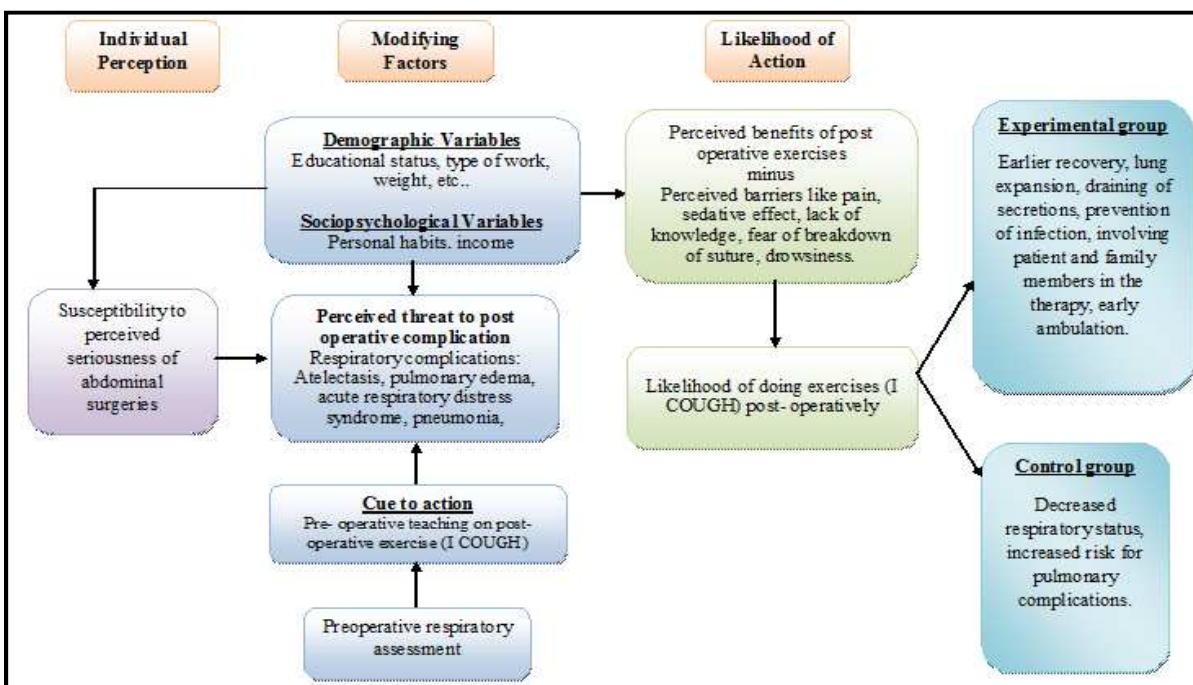
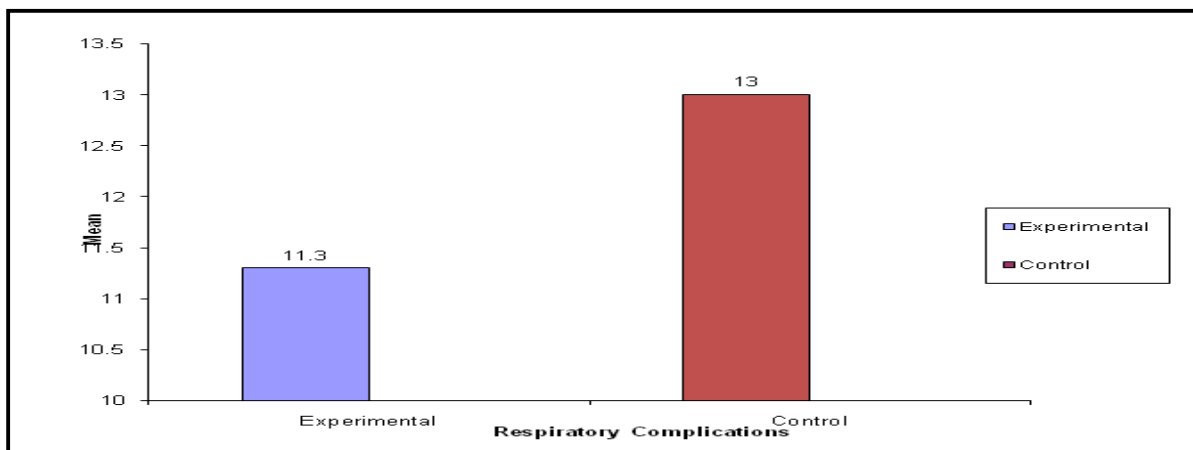
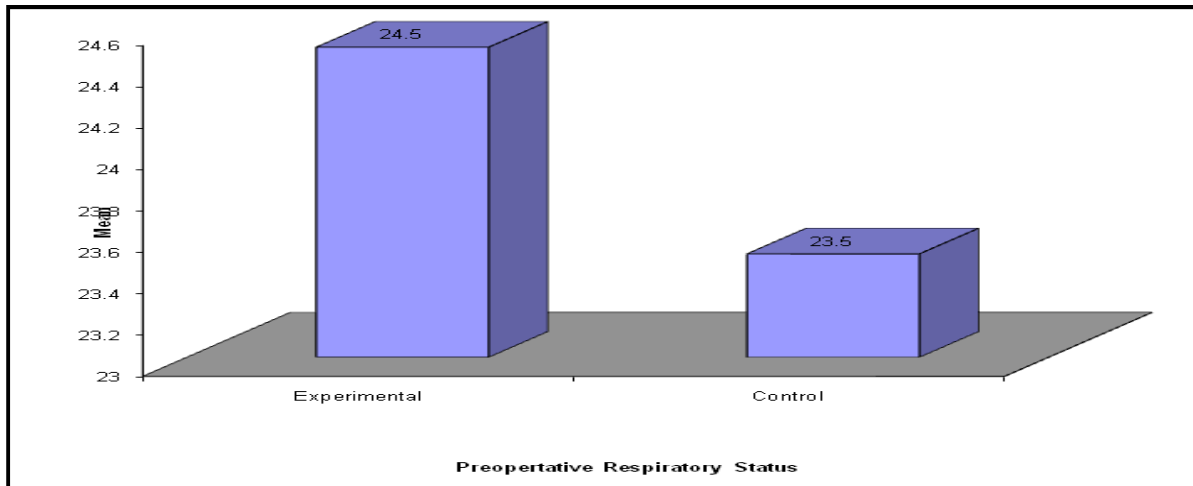


Figure No.1: Conceptual Frame Work Based on Rosen Stock's Health Belief Model (1974) (Modified)

CONCLUSION

The respiratory status of the patients who received pre-operative teaching on post-operative exercise was significantly higher than the patients who did not receive pre-operative teaching on post-operative exercise "I COUGH" The post-operative exercises significantly reduced the risk of developing pulmonary complications among experimental group. So the investigator rejects the null hypotheses and accepts the research hypotheses.

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CONFLICT OF INTEREST

We declare that we have no conflict of interest.

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