



Effect of SIM on knowledge regarding prevention of pulmonary complications Post-surgery: A pre experimental study

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ABSTRACT

Clients undergoing laparoscopic surgeries do not have a clear idea about the postoperative pulmonary complications. They also seem to lack knowledge regarding preventive measures during preoperative period to avoid post-operative pulmonary complications. The research approach used a quantitative approach with one group pre-test and post-test research design. The setting was Colaco hospital and Athena hospital at Mangalore. The sample includes 30 Laparoscopic clients selected by purposive sampling technique. Self-Instructional module was prepared in English and kannada. The pilot study was conducted with three laparoscopic clients. The reliability of the tool was established by Karl Pearson's coefficient method; $r=0.84$. The findings showed that the mean posttest knowledge score of the subjects which was 72.85% was higher than the pretest score of 32.85%. At a level of significance of 5%, the calculated 't' ($df=29$) value obtained from paired t test was 18.85. which was higher than the critical value of 1.70 showing that the improvement in knowledge score was significant. There was an association between pretest knowledge score of patients with demographic variable income status of the patient ($\chi^2_{cal}=4.464$). The study concluded that the SIM was an effective method of enhancing knowledge of laparoscopic patients regarding prevention of postoperative pulmonary complications.

KEYWORDS : Effectiveness, Self-instructional module, prevention of postoperative pulmonary complications

Introduction:

Any type of surgery is stress to the patient. It becomes even more stressful when the vital organs are involved. Having surgery is a major event in any person's life. Some of the patient may respond with expression of helplessness, security and isolation due to discomfort pain and fear of breaking stitches. These feeling can be minimized with pre-operative teaching about postoperative practice related to activities, nutrition, medication and ambulation.

Postoperative pulmonary complications contribute significantly to overall peri-operative morbidity and mortality rates. Such complications account for about 25% of deaths occurring within 6 days of surgery. The frequency rate of these complications varies from 5-70%. This wide range is due to variations among studies in the definition of postoperative pulmonary complications, as well as variability in patient-and procedure-related factors. The goal of peri operative pulmonary management is to identify patients at high risk of significant postoperative pulmonary complications, so that appropriate interventions can be provided to minimize that risk. In most cases, even in high-risk patients, the procedure can be performed safely as planned, but occasionally postponement, modification, or cancellation are warranted.

Postoperative pulmonary complications are as frequent and clinically important as cardiac complications in terms of morbidity, mortality, and length of stay. However, there has been much less research and no previous systematic reviews of the evidence of interventions to prevent pulmonary complications. Pre-operative care is a preparation and management of patient prior to surgery. It includes both physical and psychological preparation. The patients who are physically and psychologically prepared for surgery tend to have better surgical outcome. Someone is there with them and will look out for them and will lookout for them during a time when they may have no control or any self-protective abilities.

Pre-operative teaching must be individualized for each patient .some patient want as much information as possible, while others prefer only minimal information because too much knowledge may increase their anxiety. Patients have different abilities to comprehend medical procedure; some prefer printed information, while other learns more from oral presentation. It is important for the patient to ask ques-

tions during preoperative teaching session's good power of observation and an ability to listen are essential. The patient should ideally be evaluated several weeks before the operation. The history should include information about the patient (any past history of surgery, patient experience with anesthesia, history of recent infection, any medical illness particularly heart and lung, use of any medication, immunization, social support) that prevent the complication at the time and after surgery.

Traditionally, nurses have been instrumental in preventing adverse event. Preventable adverse events that have been linked to nursing care include falls, pressure, deep vein thrombosis, urinary tract infection and post-operative pulmonary complications. The prevention of post-operative pulmonary complications needs further investigation and nurse is well positioned to have an effect on reeducating their incidence. Previous studies have suggested that between 17% and 88% of people having surgery to the upper abdomen will suffer complications that affect their lungs after the operation (post-operative pulmonary complication). These complications can be made less likely and less severe with the careful use of treatments designed to increase the volume of the lungs, as these volume tends to fall after surgery. In health care today, the ability to predict and prevent adverse events such as post-operative pulmonary complications has become increasingly important as a measure of the safety and quality of care within the constraints of current health care system economics, workforce shortages and increasing patient care complexity means nurses must take proactive approach to identifying and reducing risk of patient complication.

A study on the effects of structured preoperative teaching on occurrence of post-operative complications in patients undergoing abdominal hysterectomy was conducted at RAK CON in 1991. Patients were randomly assigned to control and experimental group, 8 in each group. The study concluded, as is evident from the findings, that recovery among patients exposed to structured teaching program was found to be superior.

Investigator, as a nurse, observed that clients undergoing laparoscopic surgeries do not have a clear idea about the postoperative pulmonary complications. They also seem to lack knowledge regarding preventive measures during preoperative period to avoid post-operative pulmonary complications. Hence the investigator has strongly felt the

need to take up the study.

Materials & Methods:

The research approach used for this study was quantitative approach with one group pre-test and post-test research design. The setting was Colaco hospital and Athena hospital at Mangalore. Ethical clearance has been obtained from the hospital authority and written informed consent was also obtained from subjects prior to the study. The sample includes thirty Laparoscopic clients selected by purposive sampling technique. Data was collected using a socio demographic proforma and a self-structured knowledge questionnaire prepared by researcher. Socio demographic proforma is used to gather regarding the basic details of subjects, knowledge questionnaire consists of twenty multiple choice questions regarding prevention of complications of surgery. The reliability of the tool was established by Karl Pearson's coefficient method; $r=0.84$. After pretest Self-Instructional module was given, which is prepared in English and kannada developed by reviewing various text books, Journals, and internet and the Opinion of experts was considered. After 7 days of pretest, post test was conducted using the same knowledge questionnaire.

Results:

Socio demographic data of subjects

Majority of the subjects 33.3% belong to the age group of 31-40 years, 53.3 % were males and among the sample 53.3 % were married. With regards to education 40% of them completed secondary schooling, 33.3% of them were private employees, majority of them 33.3% of them had monthly income of 10,001- 20,000 rupees. Among the subjects 73.3% had history of surgical experience, majority of the subjects 53.3 %were smokers and 66.7%were non-alcoholics.

Effect on SIM on knowledge level of subjects



Figure 1: Percentage distribution of subjects according to level of knowledge

Table 1: Mean, standard deviation and t value of knowledge scores (n=30)

Knowledge score	Mean	Standard deviation	Degrees of freedom	t value
Pretest	6.57	1.68	29	18.85*
Post test	14.57	1.61		

*Significant at $p<0.05$

Table 1 shows mean knowledge score of pretest and posttest, paired t test was used to compute effect of SIM on pretest knowledge score.

Association between knowledge level and selected socio demographic variables

The chi-square value of demographic variable with $df = 1$ were calculated and there is association between pretest knowledge score of patients with demographic variable income status of the patient ($\chi^2_{cal}=4.464$). The calculated chi-square values were significant at 0.05 levels. So the researcher accepted the research hypothesis and rejected the null hypothesis. The chi-square value of demographic

variable with $df = 1$ were calculated and found that there is no association between pretest knowledge score of patients with demographic variables such as age ($\chi^2_{cal}=.179$), sex ($\chi^2_{cal}=0.313$), marital status ($\chi^2_{cal} = .114$), habit ($\chi^2_{cal} = 2.388$), education ($\chi^2_{cal} =1.739$), occupation($\chi^2_{cal}=0.313$) surgical experience ($\chi^2_{cal}=.008$), history of smoking($\chi^2_{cal}=.233$), history of alcoholism($\chi^2_{cal}=.179$). The calculated chi-square values were not significant at 0.05 levels.

Discussion:

In the present study the data shows that the total mean post-test knowledge score was 72.85% with standard deviation of ± 1.61 . The post-test mean knowledge score was higher 14.57% with SD of ± 1.61 when compared with pre-test mean knowledge score value which was 6.57% with standard deviation of ± 1.68 .The statistical paired' test implies that the difference between the pre-test and post-test knowledge score found statistically significant at 0.05% level. The posttest mean knowledge enhancement was with a paired' value of 18.85 at $d (f) =29$ (table value 1.70). This indicates that the self-instructional module was very effective in increasing the knowledge on prevention of postoperative pulmonary complications.

The study findings have been in consistent with a Study in Utrecht, Netherlands which shows that the first randomized clinical trial of preoperative preventive inspiratory muscle training (IMT) in patients scheduled for bypass surgery shows that the procedure halves the incidence of postoperative pulmonary complications (PPCs). "IMT also promoted postoperative recovery, because the median duration of hospitalization was shorter in the nine patients in the IMT group who developed pneumonia than it was in the 22 patients in the usual-care group who developed pneumonia (11.5 vs 13 days, respectively). PPCs were present in 25 (18%) of patients receiving IMT training compared with 48 (35.0%) of patients in the usual-care group. Pneumonia occurred in 9 (6.5%) of the patients in the IMT group compared with 22 (16.1%) in the usual-care group.

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