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Research Article

A Study to Determine the Effectiveness of Scheduled Ambulation on Post Operative Outcomes among Patients Following Major Abdominal Surgeries in Surgical Ward at PGIMS, Rohtak, Haryana

Murti

College of Nutrsing, PGIMS, Rohtak, India.
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I N F O

E-mail Id:
adeshchahal@gmail.com
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A B S T R A C T

Background of the Study: One of the most effective recovery procedures that can be done is postoperative exercises: early ambulation is done immediately to the patient after surgery starting from the exercise on bed that is leg exercises, left and right sloping, wake up and sit beside the bed, stand up and start learning to walk. The effect of early ambulation is effective in postoperative recovery and prevent complications post-surgery, there are significant differences between the intervention group and the control group for the recovery to assess the intensity of pain.

Aims of the Study: This study was conducted to determine the effectiveness of scheduled ambulation on post operative outcomes among patients following major abdominal surgeries in surgical ward at PGIMS, Rohtak.

Material and Method: The researcher conducted the study using quantitative approach and post-test research design on 50 subjects by convenient sampling technique.

Results: Unpaired t-test was used to determine the effectiveness of scheduled ambulation on post operative outcomes among patients following major abdominal surgeries. The chi-square test is used to determine the association between range of motion exercises with selected demographic variables such as age, sex, Religion, Marital status, Occupation, Income, Place of residence, Dietary pattern, Habits. However, in control group, there was a significant association between sociodemographic variables with range of motion.

Conclusion: The investigator concluded that the scheduled ambulation (Range of motion exercises)helpful for the postoperative patients who are exposed to the intervention.

Keywords: Scheduled Ambulation, Major Abdominal Surgery, Post-operative outcomes

Introduction

Those who do not find Time for Exercise, will have to find time for Illness

Abdominal surgery is a very common surgical procedure. A national survey in the United States reported that operation on the digestive system is one of the three most frequent surgical procedures (DE Frances, Lucas, Bouie, & Golosinskiy, 2008). Problems related to the digestive system are one of many reasons for surgeons to open up the abdominal cavity. The prevalence rate of major abdominal surgeries in patients aged ≥60 years is 43.8% (Nonoo-Mensah, Rosen, Chan, Wassenberg, & Beart, 2009). This rate increases with age, and is found to be significantly higher in women than men (Nonoo-Mensah et al., 2009; Primates' & Goldacre, 1994; Steiner, Bass, Talamini, Pitt, & Steinberg, 1994).

Early ambulation after surgery helps the patient to wear off physiological effects of anesthesia, stimulates peristalsis movement and reduces the possibility of post operative abdominal distension, prevents stasis of blood by increasing rate of circulation in extremities increases the rate of healing abdominal wounds. It increases ventilation and reduces stasis of bronchial secretions in the lungs and further reduces the incidence of post operative complications such as hypostatic pneumonia and circulatory problems. 'Almost 70% of surgeries performed in the hospitals are related to the abdomen.

Many patients develop complications after the surgery and nurses are at the high priority care giver to the patients after surgery. A major change in the past decade has been the emergency of outpatient surgery centers and ambulatory surgery. 60% of all the major surgeries are requiring on the basis of early ambulation. This is a development that is changing the focus of nursing care of postoperative patients based on scientific knowledge of all the phases of rehabilitation after surgery. The common problems arising after surgery performed under general anesthesia are, circulatory complications, problem of consciousness, discomfort, and respiratory tract complications. When a patient develops the postoperative complications, it will result into increase in hospital stay as well as economical loss. Pulmonary complications are high priority after major abdominal surgery.

According to presentation at 'Society for hospital medicine,' it is observed that the number of pulmonary complications after major abdominal surgery has been increased between 2010 and 2012. Pulmonary complications after abdominal surgery also increases hospital stay as well as cost of care. This leads to poor prognosis of the patient. There is a need of proper interventions to overcome these problems, so that the patients will have the immediate postoperative recovery without any complication from the surgical illness.

Abdominal surgery is an action involving the abdominal cavity that can be done with open surgery. Seventy precents of surgery at the hospital is affected by abdominal surgery.

After surgery often the patient's freedom of movement is restricted due to intravenous infusion, various tubes or drains that must accompany the patient during ambulation. A structured education program on early ambulation provides patients with knowledge needed to develop self-care abilities, self-confidence, reduce anxiety and ensure a sense of participation in care, thus protecting the patient from injury, harm & complications.

One of the problems that often arise in post abdominal surgery includes: abdominal organ manipulation during surgical procedures can cause a normal peristaltic loss for 24 to 48 hours, depending on the type and duration of surgery. Given the problem of intestinal peristaltic activity that can occur in the post-surgical abdomen, postoperative health restoration is of paramount importance to the patient. Therefore, hospitals as health care institutions need to provide maximum services aimed at accelerating healing and recovery of health and prevent complications and disabilities by making curative and rehabilitative efforts.

One of the most effective recovery procedures that can be done is postoperative exercises: early ambulation is done immediately to the patient after surgery starting from the exercise on bed that is leg exercises, left and right sloping, wake up and sit beside the bed, stand up and start learning to walk. The effect of early ambulation is effective in postoperative recovery and prevent complications post-surgery, where the practice early ambulation started 6 hours postoperatively in the intervention group and the control group ambulation standard postoperative treatment after 13-14 hours, there are significant differences between the intervention group and the control group for the recovery to assess the intensity of pain, use of analgesics, oral intake, early flatus, ,This will speed up the patient out of the hospital. Other studies have shown the findings relating to the effectiveness of ambulation planned post major surgery of the abdominal, showed significant gains between the experimental group and the control group, from the statistical analysis found that it can reduce the severity of postoperative parameters.

Need of the Study

Almost 70% of surgeries performed in the hospitals are related to the abdomen. Many patients develop complications after the surgery and nurses are at the high priority care giver to the patients after surgery. A major change in the past decade has been the emergency of outpatient surgery centers and ambulatory surgery. According to analysis more than 60% of all the surgeries are provided on the basis of early ambulation. This is a

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development that is changing the focus of nursing care of postoperative patients based on scientific knowledge of all the phases of rehabilitation after surgery.[1]

The postnatal caesarean mothers are in need of rehabilitation for pain relief of good quality after caesarean section which results in early mobilization and good early mother–child interaction. The research studies and working experience created an insight that there is lack of practice regarding early ambulation among mothers after caesarean section. So, there is a need to study the effect of early ambulation among post cesarean mothers.[3]

The common problems arising after surgery performed under general anesthesia are, circulatory complications, problem of consciousness, discomfort, and respiratory tract complications. When a patient develops the postoperative complications, it will result into increase in hospital stay as well as economical loss.[2]

The incidence of venous thromboembolism in Indian Scenario is more than 50% among the patients undergoing surgical procedure and 10- 40 % in the patients undergoing abdominal surgery. A study shown that, venous thromboembolism is an important health care problem over the world, resulting in the significant morbidity, mortality and resource expenditure as well as delayed prognosis. [4]

Pulmonary complications are also at high priority after major abdominal surgery. According to presentation at 'Society for hospital medicine,' it is observed that the number of pulmonary complications after major abdominal surgery has been increased between 1989 and 2004. Pulmonary complications after abdominal surgery also increases hospital stay as well as cost of care.[5]

Most of surgical patient are encouraged to be out of bed as soon as possible. Early ambulation reduces the incidence of postoperative complications. Ambulation increases ventilation and reduces stasis of bronchial secretions in the lungs. It also helps to reduce the postoperative abdominal wall tone and stimulates peristalsis. Thrombophlebitis or phlebothrombosis occurs less frequently because early ambulation prevents stasis of blood by increasing rate of circulation. Pain is often decreases when early ambulation is allowed. Finally, the hospital stay is shortening and becomes less costly. When the patient ambulates early in postoperative period and especially if ambulation is not possible bed exercises is encouraged to improve circulation.[6]

In the article "Positioning your patient properly," stated that immobility affects all body systems and may lead to disorders like constipation, fluid retention, diminished muscle tone, general weakness, venous stasis etc. which may lead to pulmonary embolism and reduces peripheral perfusion. In bed exercises helps to the bed ridden patient to maintain muscle strength and muscle tone. It also helps to protect patient from deep vein thrombosis.[7]

Effects of early ambulation on postoperative patient are through increase rate and depth of breathing, which prevents atelectasis and hypostatic pneumonia. It also increases mental alertness from increased oxygen to brain. Early ambulation results in to increased circulation which provides more nutrients for the healing of wound, increased kidney function, increased micturition, increased metabolism and increased peristalsis

Research Methodology:

The methodology is the systematic way to solve research problems. It helps the researcher to project a blueprint of the research undertaken. The methodology section outlines the plan and method that how the study is conducted. The steps undertaken for gathering and organisation of data collected were; research approach, research setting, research design, target population, sample and sampling technique. Criteria for sample selection, development and description of tool, content validity of tool, pilot study, data collection procedure, difficulties faced by the investigator, ethical consideration, plan for data analysis. The research methodologyindicates the general pattern of gathering valid and reliable data and organising the data for investigation. The details are as follows:

R - Randomization
I - Interventional Group
C - Control group

X - Early Ambulation for 15-20 minutes three times a day for 3 Consecutive days.

O1	–	Post -test on Intervention group.
O1	–	Post – test on control group

Research Design

Research design is a blueprint for conducting a study that maximizes control over factors that could interfere with the validity of the finding or it depicts the overall plan for organization of scientific investigation. The research design for this study was two group post-test design only.

Population and Sample

Population is the Units (People, Events, Objects, or Institutions) from Which Data are Collected

Population: Patients of surgical wards at PGIMS Rohtak.

- **Target Population**: Patients undergone major abdominal surgery.
- **Accessible Population:** Patients of surgical wards at PGIMS Rohtak
- **Sample:** The sample of the study comprises of 50 Patients.

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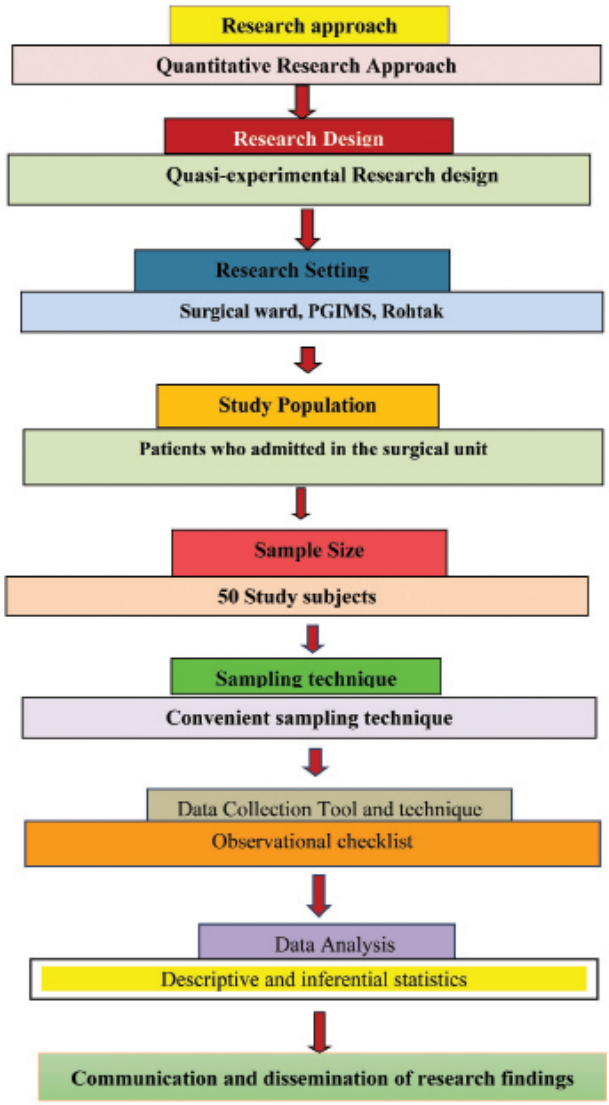

Data and Sources of Data

The data was collected from 20.03.2022 to 16.04.2022. Convenient sampling technique was used to select the sample. The subjects who met the designed inclusion criteria were included in the study. These study Subjects were consulted personally by the investigator. They were explained about the purpose and the nature of the study. They informed and written consent was obtained before enrolling them in the present study.

Data collection tool is the device that a researcher uses to collect the data. The post test data were collected from study subjects by the investigator Self-structured checklist was used to assess the level of effectiveness in post operative patients who undergone major abdominal surgeries.

Sample Criteria

Inclusion Criteria

- Patients who had undergone major abdominal surgery.
- Patients who between the age group of 18 and above
- Patients who are willing to participate in the study.

Exclusive Criteria

Are those characteristics that disqualify subjects from inclusion in the study. In present study exclusion criteria were:

- Patients who are not willing to participate in the study.
- Patients of unstable vitals/unconscious/disoriented.
- Patients who are under strict immobility.

Research Variables:

Independent Variable: Scheduled ambulation programme.

Dependent Variable: Post operative outcomes of patients undergone abdominal surgery.

Tools of Data Collection

Research tool is divided in two sections

Section A: contains sociodemographic data such as age, Sex, religion, marital status, education of patient, occupation of patient, dietary pattern of patient, dietary habits.

Section B: contains observation checklist in which following tasks are observed` such as Lying to sitting, sitting to lying, sitting to standing, Standing, Gait, Timed walk up to 6meters, Functional reach through researcher developed modified elderly mobility scale score.

Intervention Tool Explanation

Range of Motion Exercises

Definition: The movement of a joint to the extent possible without causing pain.

Purposes

- Promote and maintain joint mobility.
- Prevent contractures and shortening of muscle and tendons.
- Increase circulation to extremities.
- Facilitate comfort for the patient

Types of ROM Exercises

1. Active ROM: Exercises the client able to perform independently.
2. Passive ROM: Exercises performed for the client by someone else.
3. Active assisted ROM exercises: Performed by a client with some assistance.

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Theoretical Framework

Variables of the study contains dependent and independent variable. The present study aimed at to evaluate the effectiveness of scheduled ambulation on post operative outcomes among patients following major abdominal surgeries in surgical ward at PGIMS, Rohtak,Haryana.

The conceptual framework of this study was based on the self care deficit theory developed by

Dorothea Orem"s self care deficit theory with input, process, output and feedback in 1959.

Self-care Agency

Investigator assess the limitation of movements among the patients who has undergone major abdominal surgery.

Self Care: Major abdominal surgery patients have limited mobilization during immediate post operative period due to surgical procedure and other devices for nutrition and elimination.

Self Care Demand : Major abdominal surgery patients need assistance for early ambulation for their post operative recovery.

Data Analysis

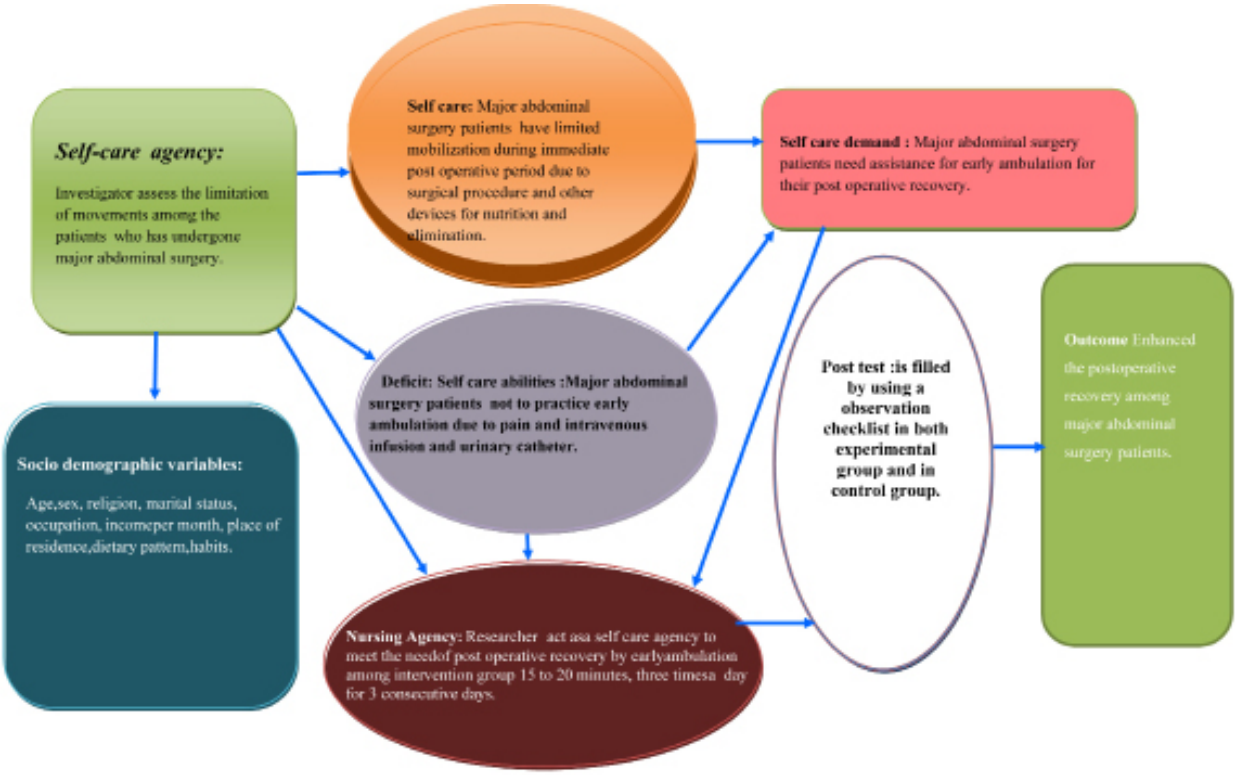
I: Distribution of Sample According to Selected Socio Demographic Variables

In experimental group among 25 study samples, Majority of subjects (40%) belongs to the age group 18-40 years. Majority of subjects (76%) were female. Majority (72%) of the subjects belongs to Hindu religion. Majority (68%) subjects are married, Majority (32%) subjects are home maker. Majority (32%) subjects are less than 20000 incomes. Majority (88%) of the subjects had rural residential area. Majority (88%) subjects are vegetarian. Majority (32%) of subjects are non-alcoholics and non-smoker.

In control group among 25 study samples, Majority of subjects (44%) belongs to the age group 18-40 years. Majority of subjects (84%) were female. Majority (88%) of the subjects belongs to Hindu religion. Majority (88%) subjects are married. Majority (60%) subjects are home maker. Majority (32%) subjects are less than 20000 incomes. Majority (76%) of the subjects had urban residential area. Majority (88%) subjects are vegetarian. Majority (60%) of subjects are non-alcoholics.

II: Effectiveness of Scheduled Ambulation in Post-Operative Patients

The findings show effectiveness of scheduled ambulation on post operative outcomes among patients who undergone major abdominal surgeries. Unpaired t-test is used, the values of unpaired t-test shows that the study is statistical significant, the t-value is 2.27 which is higher than the table value (2.011), P-value is 0.027 which is also significant at < 0.05 level and df value is 48. The effectiveness of scheduled ambulation on post operative outcomes among patients who undergone major abdominal surgeries.



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Group	Mean	Sd	Mean Difference	t-value	P-value	Df	Table Value
EXPERIMENTAL GROUP	14.92	2.040	1.48	2.27	0.027	48	2.011
CONTROL GROUP	13.44	2.530					

Table Shows Findings of the Study of Post-Test Effectiveness Score in Experimental and Control Group.

III: Determine the Association between Sociodemographic Variable with Range of Motion among Post-operative Patients of between Experimental and Control group who Undergone Major Abdominal Surgeries

The chi-square test is used to determine the association between range of motion exercises and the selected demographic variables such as age, sex, Religion, Marital status, Occupation, Income, Place of residence, Dietary pattern, Habits. There was a significant association between sociodemographic variable such as sex with range of motion among post-operative patients of between experimental who undergone major abdominal surgeries and there is no significant association with other demographic variables.

Association of Selected Socio Demographic Variables with Range of Motion in Experimental Group

Variable		Level of activity			Chi square	df	P value	Table value
		Adequate	Moderate	Total				
Age	18-40 year	2	8	10	3.261	3	0.353	7.815
	41-60 year	0	8	8				
	61-75 year	0	5	5				
	Above 75 years	0	2	2				
Sex	Male	2	6	8	4.620**	1	0.032	3.841
	Female	0	17	17				
Religion	Hindu	2	16	18	0.845^{NS}	2	0.655	5.991
	Muslim	0	5	5				
	Sikh	0	2	2				
Marital status	Married	2	15	17	1.023^{NS}	1	0.312	3.841
	Unmarried	0	8	8				
Occupation	Home maker	1	6	7	1.465^{NS}	1	0.690	3.841
	Govt. employee	0	2	2				
	Farmer	0	8	8				
	Others	1	7	8				
Income	Less than RS.20000	1	6	7	1.126^{NS}	3	0.771	7.815
	Rs.20000-40000	1	9	10				
	Rs.40000-60000	0	5	5				
	More than 60000	0	3	3				
Place of Residence	Rural	1	20	21	1.870^{NS}	1	0.171	3.841
	Urban	1	3	4				
Dietary pattern	Vegetarian	2	20	22	0.296^{NS}	1	0.586	3.841
	Non-vegetarian	0	3	3				
Habits	Alcoholics	0	2	2	1.465^{NS}	3	0.690	7.815
	Non alcoholics	1	7	8				
	Smoking	0	8	8				
	Non smoking	1	6	7				

**-indicate Significant
NS-indicate non-significant

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Association of Selected Socio Demographic Variables with Range of Motion in Control Group

Variable		Level of activity				Chi square	df	P value	Table value
		Adequate	Moderate	Inadequate	Total				
Age	18-40 year	2	0	9	11	21.340**	6	0.002	12.592
	41-60 year	0	0	6	6				
	61-75 year	0	0	4	5				
	Above 75 years	0	1	0	3				
Sex	Male	2	0	2	4	11.658**	2	0.003	5.991
	Female	0	4	17	21				
Religion	Hindu	2	1	19	22	17.898**	4	0.001	9.488
	Muslim	0	1	0	1				
	Sikh	0	2	0	2				
	Christian	0	0	0	0				
Marital status	Married	0	4	18	22	16.029**	2	.000	5.991
	Unmarried	2	0	1	3				
Occupation	Home maker	2	0	14	16	25.822**	6	.000	12.592
	Govt. employee	0	0	15	5				
	Farmer	0	2	0	2				
	Others	0	2	0	2				
Income	Less than RS.20000	2	0	7	9	16.740**	6	0.010	12.592
	Rs.20000-40000	0	2	7	9				
	Rs.40000-60000	0	2	0	2				
	More than 60000	0	0	5	5				
Place of Residence	Rural	2	0	4	6	7.687**	2	0.021	5.991
	Urban	0	4	15	19				
Dietary pattern	Vegetarian	2	1	19	22	17.898**	4	0.001	9.488
	Non-vegetarian	0	2	0	2				
	Eggetarian	0	1	0	1				
Habits	Alcoholics	2	0	4	6	31.579**	6	0.000	12.592
	Non alcoholics	0	0	15	15				
	Smoking	0	2	0	2				
	Non smoking	0	2	0	2				

**-indicate Significant

NS-indicate non-significant

There was a significant relationship between sociodemographic variables with range of motion among post-operative patients of between control group who undergone major abdominal surgeries.

Discussion

This study was conducted to determine the effectiveness of scheduled ambulation in experimental and control group using 50 samples in surgical wards at PGIMS, Rohtak. Statistical analysis was carried out by using SPSS version 20.A post-test was done in experimental and control group, after providing intervention to the experimental group. The findings of this study shows that the Mean value for experimental group is 14.92,SD value is 2.040 And for

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control group Mean value is 13.44,SD value is 2.530, that shows the study is statistically significant, the t-value is 2.2769 which is higher than the table value(2.011) that also shows the study is statistically significant ,P-value is 0.0274 which is also significant at < 0.05 level and df value is 48.

Conclusion

Statistical evidence proved that early ambulation is an effective intervention to enhance the post operative recovery which increases the confident and motivate the patients to do their daily activities and functional activities independently. Scheduled ambulation also reduces the rate of post-operative complications.

Recommendations

On the basis of findings of the study, the following recommendations are being made.

- This study can be replicated with a large sample size for better generalizations
- The hospital authority can practice early ambulation from first post operative period
- A similar study can be done to identify the \effect of early ambulation enhanced the post operative recovery with five- or seven-days nursing intervention.
- Quasi- experimental posttest can be used.

Conflict of Interest: None

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