

An Experimental study: Effectiveness of Nursing protocol on postoperative outcome among patients undergoing major Visceral Surgeries in a Selected Tertiary Care Hospital at Delhi

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Abstract

Introduction : Surgery is almost always viewed as a life crisis and evokes anxiety and fear . In line with the growing number of surgical procedures being performed worldwide, postoperative complications are also increasing, proportionately increasing mortality, impairing patients' postoperative outcome, lengthening intensive care and total hospital stay. Preoperative assessment and care is extremely important prior to any invasive procedure including minor and major surgical procedures. Physical and psychological preparation tends to improve surgical outcomes. Preoperative teaching provides with pertinent information concerning the surgical process and the intended surgical procedure as well as anticipated patient behavior (anxiety, fear), expected sensation, and the probable outcomes. The experimental study was conducted to assess the effectiveness of nursing protocol on postoperative outcome among patients undergoing major visceral surgeries in a selected tertiary care hospital. The objectives of the study were to assess the post operative outcome of patients undergoing major visceral surgeries in the study and control group, to determine the effectiveness of nursing protocol on postoperative outcome among patients undergoing major visceral surgeries and to associate the post operative outcome with the socio demographic variables.

Materials and Methods: An experimental, post-test only design was used to conduct the study at tertiary care hospital in Delhi. The intervention was carried out in the pre-operative surgical wards of the tertiary care hospital and post-operative data was collected in the inpatient surgical unit. 63 samples in the experimental group and 63 samples in the control group were selected by simple random sampling technique. The study revealed that there was a significant difference in the pain scores on the seventh day after surgery and on the patient satisfaction related to preoperative education and intraoperative care.

Keywords: Preoperative education, Postoperative, visceral surgery, nursing protocol, postoperative outcome

Introduction

Surgery is almost always viewed as life crisis and evokes anxiety and fear.¹ In line with the growing number of surgical procedures being performed

worldwide, postoperative complications are also increasing proportionately increasing mortality, impairing patients' postoperative outcome, lengthening intensive care unit and total hospital stay.³ Preoperative assessment and care is extremely

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important prior to any invasive procedure including minor and major surgical procedures and physical and psychological preparation tends to improve surgical outcomes¹

Preoperative teaching provides with pertinent information concerning the surgical process and the intended surgical procedure as well as anticipated patient behaviour (anxiety, fear), expected sensation, and the probable outcomes.⁴ Relevant information, skills training, and psychological support are essential components of the pre-operative patient education.⁵ Few experimental or quasi experimental research studies have explored the impact of preoperative instruction in patients undergoing abdominal surgery. Evidence of the effect of preoperative education among surgery patients is inconclusive.

The present experimental study was conducted to assess the effectiveness of nursing protocol on postoperative outcome among patients undergoing major visceral surgeries in a selected tertiary care hospital with the following objectives.

1. To assess the post operative outcome of patients undergoing major visceral surgeries in the study and control group.
2. To determine the effectiveness of nursing protocol on postoperative outcome among patients undergoing major visceral surgeries.
3. To associate the post operative outcome with their selected demographic variables.

To answer the research question, the following hypotheses were formulated:

H_0 . There is no significant difference in post operative outcomes of patients undergoing major visceral surgeries in intervention group compared to control group.

The conceptual framework of the present study is developed by the investigator based on Imogene King's Goal Attainment Theory. Imogene King emphasizes the nurse's role as a process of action, reaction and interaction.

Here a nurse and the patients share information about the nursing situation and the process of human interaction begins between them. Each of them perceives the situation and through communication

they set goals, explore and agree to the means to achieve them.

Materials and Methods

The research design selected for the present study is experimental post-test design and the study was carried out from Sep 2020 to Aug 2021. The nursing protocol i.e. the intervention related to deep breathing and coughing exercises, use of incentive spirometer, pain management moving out of bed, early ambulation etc were taught with the help of video and demonstration in the pre-operative surgical wards of the hospital and ensuring that the patients practised the exercises taught every four hourly during waking hours on the first three days after surgery. Post-operative data was collected in the inpatient surgical unit in the same hospital. The samples in this study are patients undergoing visceral surgery in a tertiary care setting at Delhi. 63 samples in the experimental group and 63 samples in the control group were selected by simple random sampling technique. A pilot study was conducted on 10% of the samples. The pilot study showed feasibility in conducting the study. A few modifications were included in the study tool with expert's suggestions. The tool used for the study consists of two parts. The first part is related to the socio demographic data. The second part is to measure the post operative outcomes like morbidity, pain, patient satisfaction and postoperative mortality within 30 days after the index operation. Post operative morbidity was evaluated using Clavein Dindo classification. Numeric pain score was used for assessing the pain on the 2nd and 7th day after surgery. Patient satisfaction was assessed using a structured questionnaire on the third post operative day. The investigator adhered to the ethical principles of human rights, beneficence and non-maleficence, dignity, confidentiality and justice in all the aspects.

Results and Discussion

SPSS statistical package 20.0 was utilized for the data analysis.

Description of Demographic variables; The demographic variables of the samples undergoing major visceral surgeries were analyzed by using the frequency, percentage distribution, mean and standard deviation.

Table 1: Description of sample characteristics in terms of frequency and percentage

Demographic Variable		Experimental Group		Control Group		Chi-Square (p valve)
		F	%	f	%	
Age in Years	18-27	-	-	01	2	34.85 (0.09)
	28-37	07	11	05	8	
	38-47	16	25	15	24	
	48-57	14	22	17	27	
	58-67	11	18	16	25	
	68-77	11	18	09	14	
	78-87	04	6	-	-	
	Above 87	-	-	-	-	
Gender	Male	33	52	36	57	8.25 (0.14)
	Female	30	48	27	43	
Marital Status	Unmarried	06	10	08	13	8.32 (0.004)
	Married	57	90	55	87	
Religion	Hindu	48	76	49	78	3.75 (0.710)
	Sikh	-	-	02	3	
	Christian	08	13	07	11	
	Muslim	07	11	05	8	
	Others	-	-	-	-	
Education	Less than 10	17	27	26	41	22.61 (0.007)
	10-12	17	27	11	17	
	Graduate	20	32	16	26	
	Post-graduate	09	14	10	16	
	Others	-	-	-	-	
Income	Less than 10,000	-	-	-	-	5.364 (0.498)
	10,000-30,000	15	24	25	40	
	30,001-60,000	37	59	32	50	
	60,001-90,000	09	14	06	10	
	90,001-1,20,000	02	3	-	-	
	More than 1,20,000	-	-	-	-	
Dietary Pattern	Veg	25	40	24	38	3.16 (0.78)
	Non-Veg	13	20	13	21	
	Mixed	25	40	26	41	

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Surgery	Hernia	17	27	12	19	38.25 (0.636)
	Cholelithiasis	13	21	15	24	
	CA Pancreas/ CA Gall Bladder	11	17	08	13	
	Renal Calculus	05	8	04	6	
	Periampullary CA/ CA Stomach	04	6	04	6	
	CA Colon	08	13	06	10	
	Renal Transplant	-	-	04	6	
	EXP LAP	05	8	10	16	
Co-morbidities	Nil	19	31	21	33	56.13 (0.470)
	Diabetes Mellitus	09	14	09	14	
	Hypertension	11	17	08	13	
	Cardiac	07	11	05	8	
	Thyroid	02	3	04	6	
	Diabetes Mellitus + Hypertension	05	8	02	3	
	Diabetes Mellitus + Hypertension + Thyroid	03	5	06	10	
	Diabetes Mellitus + Cardiac + Hypertension	07	11	05	8	
	Cardiac Hypertension + Thyroid	-	-	-	-	
	Others	-	-	03	5	
ASA Grading	I	31	49	18	29	4.675 (0.322)
	II	23	37	29	46	
	III	09	14	16	25	

Analysis revealed that in the experimental group, majority of the participants i.e. 25% belonged to age group 38-47 years, 52% of the participants were male and 48% were female, 90% were married. 76% were Hindus, 32% of the participants were Graduates, 59% belonged to 30,001-60,000 income group, 40% were having non-veg & mixed dietary pattern, 27% of the participants were admitted for hernia surgery followed by cholelithiasis surgery 21% , 31% were having no co-morbidities, 49% of the participants were in ASA grading I.

In control group, majority i.e 27% of the participants were in the age group 48-57 years, 57% were male and 43% were female, 87% of the participants were married, 78% of the participants were Hindus, 41% of the participants educational

status were less than 10 th standard, 50% of the participants belonged to 30,001-60,000 income group, 41% of the participants were having mixed dietary pattern, 24% of the participants underwent cholelithiasis surgery followed by Hernia surgery i.e. 19%, 33% were having no co-morbidities, 46% of the participants were in ASA grading I & II.

Effectiveness of nursing protocol on postoperative outcomes

In the experimental group, the majority, i.e., 98% of the participants were not having post-operative morbidity and 2% of the participants were having pneumonia on the 2nd day after surgery. On the 7th day 98% of the participants were not having post-operative morbidity and 2% of the participants were

having pneumonia. On the 30th day no samples had post-operative morbidity.

In the control group, 92% of the participants were not having **post-operative morbidity** and 8% of the participants were having pneumonia on **2nd day post operatively**. On the **7th day** 92% of the participants were not having post-operative morbidity and only 8% of the participants were having pneumonia. On 30th day after surgery none of the participants were having post-operative morbidity

When the **pain scores** were assessed using the numeric pain score on the **2nd post operative day** it was found that 68% samples of the control group and 65% samples of the experimental group experienced severe pain and 32% participants of the control group and 35% participants of the intervention group had moderate pain.

When the **pain scores** were analyzed using numeric pain score on the **seventh post operative day** it was found that 80% in the control group (standard education group) and 97% in the interventional group had only mild pain and 20% in the control group (standard education group) and 3% in the interventional group experienced moderate pain and none had severe pain. The mean post-test post-operative pain score on 7th day (2.38 ± 0.68) of the experimental group was lower than the mean post-test post-operative pain score (3.11 ± 0.91) of the control group with the mean difference of 0.23.

The calculated t value ($t=5.067$) was more than the tabled value ($t_{124} = 1.65$). Hence there is statistical significance difference in the mean post-test post-operative pain score.

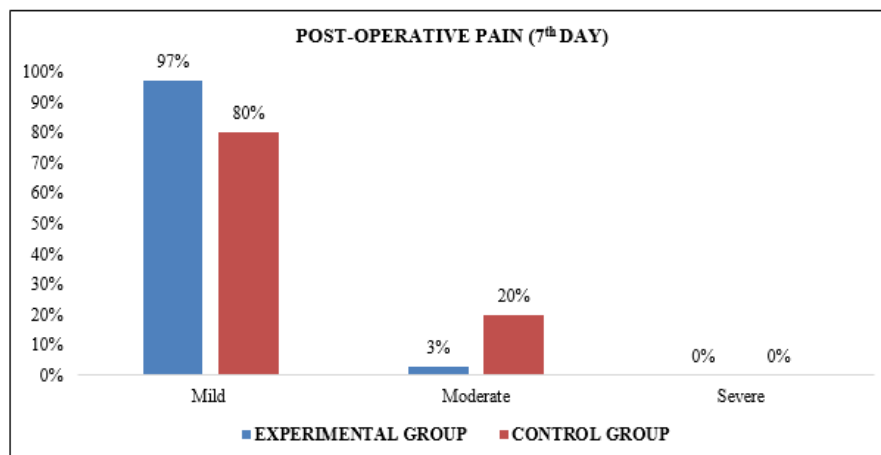


Fig 1: Comparison Of Post-Operative Pain In Exptl And Control Gp On 7th Day After Surgery

In a study conducted by Salah FathiAlhj Taher, it was shown that educational intervention patients reported reduced pain scores at various events in the post-operative period after implementing the self-management techniques discussed during preoperative counseling. The study discovered that preoperative education serves a significant influence in reducing preoperative anxiety in patients undergoing abdominal surgery, minimizing postoperative discomfort, and influencing vital signs. This study suggests that preoperative health education should be an integral part of normal care for surgery patients' preoperative preparations.

On analyzing the patient satisfaction in relation to intraoperative care and preoperative education the mean post-test patient satisfaction score (12.58 ± 1.07) of the experimental group was higher than the mean post-test patient satisfaction score (11.79 ± 1.50) of the control group with the mean difference of 0.79. The calculated t value was ($t=3.40$) more than the tabled value ($t_{124} = 1.65$). Hence there is statistical significance difference in the mean post-test patient satisfaction score to intraoperative care and patient education among patients undergoing visceral surgeries.

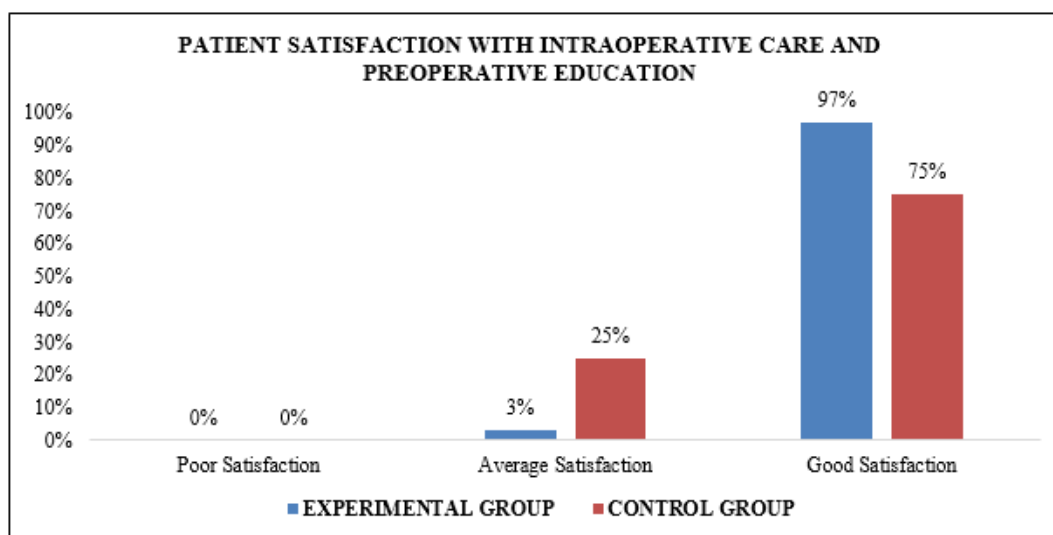


Fig 2: Patient Satisfaction With Intraoperative Care And Preoperative Education

It was similar to studies by Kalogianni, A et al. (2019) that explored the effect of preoperative education on satisfaction and postoperative outcomes of patients undergoing heart surgery. Scores on all measures of satisfaction were higher for the intervention group ($p < 0.001$).¹³

When the mortality of the patients undergoing major visceral surgery was analyzed in the experimental group and control group till the 30th day of surgery it was observed that no mortality was there in the control group and in the experimental group.

Association of postoperative outcomes with socio demographic variables

In this experimental research the association of the selected demographic variables with post-operative morbidity on 2nd day, 7th day and 30th day in the experimental group according to Clavien Dindo Classification revealed that there is no significant association established with the selected socio-demographic variables. In case of control group also with post-operative morbidity on the 2nd day, 7th day, 30th day according to Clavien Dindo Classification, the analysis revealed that there is no significant association established with the selected socio-demographic variables.

Further the association of the selected demographic variables with post-operative pain 2nd day and 7th day in the experiment group according to Numerical Rating Pain Scale revealed that there is no significant

association established with the selected socio-demographic variables. Also in control group with post-operative pain on 2nd day, and 7th day according to Numerical Rating Pain Scale the analysis revealed that there is no significant association established with the selected socio-demographic variables.

The analysis of patient satisfaction in the control group with preoperative education and intraoperative care revealed that there is no significant association established with the selected socio-demographic variables.

Conclusion

Postoperative complications burden not only the individual patient but also the healthcare system and the nation's economy at large. It is estimated that postoperative complications account for 22% of preventable deaths among hospitalized patients, 2.4 million hospital days and 9.3 billion in hospital charges as a result of complications annually.

Patient education is a crucial component of the job of medical professionals and inpatient care. The purpose of patient education is to develop patients' competence, confidence, and self-efficacy and empower them to participate actively in their care, thereby decreasing postoperative complications and mortality.

Ethical clearance taken from Bareilly International University ethical committee and tertiary care hospital at Delhi.

Informed consent was taken from the participants of the study.

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Conflict of Interest: Nil

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