

Effectiveness of early ambulation on postoperative anxiety and co-operation among laparotomy surgical patients

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Abstract

Context: Ambulation improves blood flow, wound healing and reduces postoperative complications.

Aims: To assess the effectiveness of early ambulation on the level of anxiety, co-operation and to correlate the anxiety level with co-operation among postoperative patients in the experimental and control group.

Settings and Design: Pre- and post-test control group design was adapted for the present study. The participants were selected based on simple random assignment technique using the lottery method from the selected hospital at Puducherry.

Materials and Methods: A total of 120 participants were selected for the study, 60 patients were allotted for the experimental group and initiated early ambulation. After 15 h of postoperative period, the patient was ambulated for two times a day for a distance of 30–40 feet, continuously for 5 postoperative days. Sixty samples were allotted for the control group who receives regular postoperative instructions. Modified STAI-Y-1 scale is used to measure the level of anxiety and observation checklist was used to monitor the co-operation for postoperative care before the initiation of early ambulation as pretest and after 5 postoperative days as posttest.

Statistical Analysis Used: The data were analyzed using SPSS v. 16 (Chicago, Illinois, USA), statistical tests including frequency, percentage, and Chi-square.

Results: Both the groups had severe anxiety levels (100%) and were noncooperative to postoperative care in the pretest. In posttest, the majority (85%) of the client shows mild anxiety, 15% shows no anxiety and most (88%) of the clients were fully cooperative for postoperative care in the experimental group. Whereas in the control group, 90% of the clients shows severe anxiety and were noncooperative.

Conclusions: Early ambulation is very effective in reducing postoperative anxiety, thereby the patient was very cooperative for care. Therefore, nurses can teach the importance of early ambulation to patients with laparotomy surgeries

Keywords: Anxiety, Co-operation, Early ambulation, Postoperative

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INTRODUCTION

Abdominal surgery is an operation in the abdominal cavity including the stomach, gallbladder, small or large intestine, etc. Operation is a form of treatment, it significantly affects patient's functional activity, activities of daily living, psychological well-being which adversely affects the recovery process.^[1]

Anxiety is an emotional response to a threatening situation, and it is generally agreed that hospitalization and associated procedures produce various threats including possible disability, coping with new social situations, and deprivation of normal freedom results in alteration in the physiological parameters.^[2]

Surgery can be an uncomfortable, unpleasant, and painful procedure. Patient acceptability of the procedures may be reduced due to fears of embarrassment, discomfort, and worry which in turn reflect disturbances in physiological response and recovery process.^[3]

Early ambulation is an important postoperative intervention among patients undergoing laparotomy. It is a technique in which the patient can turn to one side, sit, stand, and walk for a few distance within 24 h after a surgery.^[4] Adequate information about postoperative management includes benefits of early ambulation may reduce anxiety; fear and worrying that may lead to good cooperation in postoperative period triggers early recovery.^[5] So as a nurse and health care personnel, it is our role to educate the patient, thereby reduces anxiety thereby maintains stable physiological response and gain cooperation which will adversely helpful in early recovery and reduce the length of hospital stay.

Worldwide, high volumes of patients undergo surgical procedures of one type or another. Irrespective of the type of procedure, the postoperative recovery is an essential part of the patient experience.^[6] During an average hospital stay, a patient will spend 73%–83% of their time lying in their bed. This inactivity has been found to cause 5% loss of strength per day. Between 34% and 50% of elderly patients in a medical-surgical setting lost function during their hospitalization for reasons unrelated to the primary diagnosis due to bed rest, indwelling tubes, use of sedating drugs (Drolet, DeJulio, Harkless, Henricks, Kamin, Leddy, 2013).

A national survey in the United States reported that operation on the digestive system is one of the three most frequent surgical procedures. The prevalence of intra-abdominal surgery among those in the age of 60 years

is 43.8% and increases with age, and females are found to have a significantly higher rate than males.^[7]

Anxiety is a major problem among the patient undergoing surgery. Anxiety may have adverse consequences and can sometimes hamper successful completion of the procedure.^[8]

Immediately, after surgery, the postoperative care begins. The type and length of postoperative care depend on the type of the surgery and health condition of the patients. The most important goal of the postoperative care is reduction of pain, prevention of infections and improve the health status of the patients. The intensity of postoperative pain can be influenced by preoperative anxiety and fear. The extent of anxiety depends of the types of surgery that adversely increase postoperative morbidity and mortality. The most essential postoperative care includes patient comfort, wound care, prevention of infection, and postoperative complications. Good postoperative care is an essential component in nursing care which ensures, physical, mental, and social recovery of the postoperative patients and family members.^[9]

A person's cognitive processes can alter the perceived meaning of a threatening stimulus and reduce the physiological response.^[9] The best way to reduce the anxiety of the patient is to educate about the management and provide psychological support during the procedure stated by John D. Ragland (2012), in the Cognitive theory of Emotion.^[10,11] It is considered that major abdominal surgery seems to be the most painful procedure. According to the literature review, researchers identified that early ambulation after abdominal surgery improves the quality of recovery among postoperative patients.^[11] During the clinical experience, the investigator has observed that many patients scheduled for surgery are having anxiety, patient experiences more discomfort postoperatively. According to the investigator, this is the result of inadequate information being given before the procedure. Hence the investigator felt that preprocedural teaching will reduce anxiety level and increase self confidence and satisfaction postoperatively. The main aim of the study was to assess the effectiveness of early ambulation on the level of postoperative anxiety, cooperation for postoperative care and to correlate the anxiety with co-operation among surgical patients in the experimental group in comparison with the control group.

The Hypothesis of the research was as follow: H_1 - There will be a significant difference in the level of anxiety and cooperation between the experimental and control group at a 0.05 level of significance after early ambulation.

MATERIALS AND METHODS

Research design and setting

Quantitative research approach was adopted to achieve the aim of the present study. In the present study, the experimental research (randomized control trial) design was adopted. The study was conducted at Indira Gandhi Government General Hospital in Puducherry. 120 patients who had abdominal surgery were included in the study from October 2018 to September 2019. The inclusion criteria were as, being a candidate for abdominal surgeries through laparotomy incision, having age between 21 and 75 years, being able to understand and speak Tamil, being willing to participate in the study and having score of nine and above by Aldrete postanesthesia recovery scale (10 point scale). The Exclusion criteria consisted of being physically and mentally disabled. Simple random assignment technique was adopted by using the lottery method.

Population of the study

The population for the present study was the clients who were candidate for abdominal surgeries in postoperative unit at selected hospitals in Puducherry.

Sample

Sample for the present study was the postoperative clients who underwent abdominal surgeries and who fulfill the inclusion criteria.

Sample size

The sample size was calculated to be using OpenEpi version 3.01 (San Francisco, California, USA), with 95% confidence interval and 90% power to detect a significant difference, the estimated sample size was 110 (55 patients in each group). Due to the availability of abdominal surgery patients, and considering the dropout of patients, the final sample size was 120 with 60 in each group. The experimental group received early ambulation and the control group receives regular postoperative instructions.

Intervention

Early ambulation is technique given in the postoperative period following surgery

Totally, 120 participants were selected for the study and control group (60 for the study group and 60 for the control group). Following surgery, After 15 h of postoperative period, the patients were assessed for postanesthesia recovery by Aldrete postanesthesia recovery scale (10 point scale). The patient who secured a score of nine and above in the Aldrete postanesthesia recovery scale was included in the study. The pretest (anxiety level and cooperation) was assessed after 15 h of postoperative period. The experimental group patients was ambulated

in the postoperative ward by the researcher, for 2 times a day for a distance of 30–40 feet, continuously for 5 postoperative days. On the 5th postoperative day, the posttest was assessed by Modified STAI-Y-1 scale that measures the level of anxiety. An observation checklist was used to monitor the patients' cooperation for postoperative care. Data collection was carried out within the given period of 6 months at selected hospitals, Puducherry. Self-introduction and information about the study were explained to the participants, to get co-operation for data collection. Data were collected in three phases,

- First phase: Demographic data were collected from the client in both experimental and control group
- Second phase: Level of anxiety and cooperation was assessed as pretest, and early ambulation was initiated postoperatively for the experimental clients
- Third phase: Level of anxiety was assessed by modified STAI–Y-1 scale and co-operation was observed with the help of observation checklist from both group.

The following tools were constructed for the purpose of obtaining data for the study. It consists of three sections, (1) demographic variables such as age, sex, educational status, residence, monthly income, habits, and awareness toward surgical procedure, (2) modified STAI-Y-1 scale to measure the level of anxiety, and (3) observation check list to measure the client's cooperation for postoperative care.

The modified STAI-Y scale is a 4-point scale consist of 20 questions. The content validity was obtained from the expert in the field of nursing. The scoring method consists of four categories as No anxiety level (scores between 0 and 20), mild anxiety (scores between 21 and 40), moderate anxiety (scores between 41 and 60), and severe anxiety (scores between 61 and 80). The test-retest method was used to assess the reliability of the tool. The intraclass correlation coefficient for this tool was 0.910, with $P < 0.001$. Hence, the tool was found reliable on the consistency aspects.

Cooperation check list consists of 15 questions of yes or no type, Yes carries 1 mark, No carries zero marks. The scoring method was classified into three categories as noncooperative (scores between 0 and 5), partially cooperative (scores between 6 and 10) and fully cooperative (scores between 11 and 15). Cooperation of the patient was assessed by two evaluators. Kappa statistics were applied. The kappa value was 0.89 which constitutes perfect agreement. Hence, the tool was found reliable. Both the tool was translated in Tamil and obtained validation from the experts.

Ethical consideration

The study was approved by the Institutional Research Committee members (Ethical registration number: GHIEC/2018), Written permission for conducting the study was obtained, all participants were informed about the study. Informed consent was received from the participants.

RESULTS

The present study findings showed that the demographic variables in the experimental and control group were not statistically significant ($P = 0.05$). This result revealed the homogeneity between the group.

The experimental and control group were assessed through descriptive statistics and found to be similar in age, gender, education status, residence, monthly income, habits, and awareness toward surgical procedure. Majority of the clients (63%) in the experimental and in the control group (66%) belongs to the age group between 31 and 40 years and most of them were male in both groups. Regarding educational status, most of the clients in the experimental (56.7%) and control group (50%) were graduates. Majority of the clients (87%) in the experimental and in the control group (93%) were residing in urban. Most of the clients (66%) in the experimental and control group (60%) had income between Rs. 10,001 and 15,000 per month respectively. Majority of the clients (76%) were alcoholics in both groups. About 43% of the clients were consuming alcohol for more than 6 and 10 years in the experimental group and in the control group (47%) were consuming for 1 and 5 years. 87% of the clients were aware of the surgical procedure in the experimental group and 86% in the control group.

Maximum number of clients were informed regarding pain management through health care members in both groups.

Majority (85%) of the client showed mild anxiety and 15% showed no anxiety in the experimental group. Whereas in the control group, majority (90%) of them showed severe anxiety. The significant $P < 0.001$ infers that the two groups were statistically different and revealed most of the clients in the control group were severely anxious [Table 1]. Hence the research hypothesis H_1 was accepted.

In the experimental group majority (88%) of the clients were fully cooperative, whereas in the control group 80% of the clients were noncooperative. The significant $P < 0.001$ reveals that the experimental group clients were highly cooperative for postoperative care [Table 2].

The negative relationship (-0.892^{**}) exists between the anxiety level with cooperation, infers that whenever the anxiety of the patient increased, their cooperation to the postoperative care were reduced.

DISCUSSION

Anxiety is considered one of the basic feelings in humans. High anxiety levels before or after operation can lead to delay in postoperative recovery process. Ambulation during postoperative period helps to reduce the situational anxiety thereby gains cooperation for postoperative care.

The study finding revealed, both the groups had severe anxiety and were noncooperative in the pretest. In posttest, majority of 85% of the clients in the experimental group shows mild anxiety and 15% shows no anxiety. Whereas in the control group, majority (90%) of them show severe anxiety. The significant P value of the Chi-square test infers that the two groups were statistically different. Hence, it concluded that most of the clients in the control group had severe postoperative anxiety than the study.

The study findings were consistent with Henok Mulugeta, (2018) who conducted a cross-sectional study among 353 patients on preoperative anxiety and associated factors among adult surgical patients at Northwest Ethiopia. The result revealed patients showed a high level of preoperative anxiety (61%) and the most common reported factor was fear of complications 187 (52.4%). There was a statistically significant high level of preoperative anxiety among female patients showed high-level preoperative anxiety than male. It concluded that preoperative teaching will reduce the anxiety level of the surgical patients and increases patient satisfaction toward the surgical process.^[12]

The research finding was supported by Amit Kumar (2019) who conducted a prospective observational study on anxiety level toward surgical procedures in a university hospital, Amsterdam. The preoperative anxiety scale was used to assess the level of anxiety and Information Scale was used to assess the other parameters. The result showed, 83% of the patient had high level of anxiety toward surgical procedures. It concluded that the anxiety level continued to increase from preoperative to postoperatively. Adequate preoperative teaching will reduce anxiety levels and improve postoperative outcomes.^[13]

The study findings suggested that early ambulation shows reduced level of anxiety among the experimental group. Hence, the research hypothesis H_1 was accepted.

Table 1: Distribution of the level of anxiety for the client by group wise (n=120)

Anxiety level	Pretest, frequency (%)		Posttest, frequency (%)		Chi-square test	df	P
	Experimental group	Control group	Experimental group	Control group			
No anxiety (0-20)	-	-	9 (15)	0	52.57	2	<0.001** (significant)
Mild anxiety (21-40)	-	-	51 (85)	6 (1) 0			
Moderate anxiety (41-60)	-	-	-	-			
Severe anxiety (61-80)	60 (100)	60 (100)	0	54 (90)			

**Highly significant, $P < 0.05$ significant. df: Degrees of freedom

Table 2: Co-operation of the client on postoperative care

Behavior during the procedure	Experimental group, frequency	Control group, percentage	Experimental group, frequency	Control group, percentage	Experimental group, frequency (%)	Control group, frequency (%)	Chi-square test	df	P
Noncooperative	60	100	60	100	-	48 (80)	54.0	2	<0.001** (Significant)
Partially cooperative	-	-	-	-	7 (12)	12 (20)			
Fully cooperative	-	-	-	-	53 (88)	-			

df: Degrees of freedom

Both the groups were nonco-operative toward postoperative management in pretest (100%). In posttest, the experimental group shows, majority (88%) of the clients were fully cooperative, whereas in the control group 80% of the clients were noncooperative. The significant $P < 0.001$ reveals that the experimental group clients were highly cooperative for postoperative care.

The study was constituted with Nisha Clement (2018), who evaluated the effectiveness of ambulation on daily activities, functional, and psychological well-being among 150 postoperative patients in Bangalore. Simple random sampling techniques was applied, and the patients were ambulated at 16th h after surgery. The data was analyzed by *F*-test and *t*-test. The result revealed that there was significant difference in early ambulation among the groups. The posttest scores of daily activity, functional restoration, and psychological well-being between the group were $t = 29.54$, $t = 17.98$, and $t = 33.59$, respectively. The researcher concluded early ambulation exhibit better postoperative recovery and higher performance of activities. Therefore, stronger motivation, great support are the key components for the patients who underwent abdominal surgery.^[14]

Massouh, Faraj, Martin, Rachel, Chan, and others (2019) conducted a prospective cohort correlation study between early ambulation and quality of recovery after surgery among 200 patients from July 2015 and June 2017. The result highlighted the moderate correlation between early ambulation and quality of recovery with a ρ (95% confidence interval) equivalent to 0.56 (0.328–0.728). This study demonstrated that ambulation may also help to enhance the Quality of recovery postoperatively.^[15]

The study was represented by Anne Drolet, Patti DeJulio, Sherri Harkless, Sherry Henricks, Elizabeth Kamin

et al., (2013) conducted a quasi-experimental study on nursing assessment guide of mobility potential among the patients who were hospitalized for 72 h or longer at 42 medical/surgical intensive care units. Retrospective and prospective charts were reviewed for daily ambulation status and activity level for each patient. The result revealed, during the first 72 h of their hospitalization that, 6.2% and 15.5% of the intensive care unit and intensive medical care unit patients were ambulated. It concluded; the nurse-driven mobility protocol driven by the nurses suggests that the rate of patient ambulation during the first 72 h of a hospital stay can be increased.^[16]

Hence, the findings denote that the early ambulation among postoperative patients was highly effective in reducing the level of anxiety, gains high cooperation during the postoperative care. Patients who are scheduled for laparotomy and major abdominal surgery may have increased levels of anxiety. Controlled rehabilitation with early ambulation will reduce postoperative anxiety and increase cooperation toward care. Hence, the research hypothesis H_2 was accepted.

Research finding and implication

The nursing personnel can initiate the importance of early ambulation in the preoperative period. The continuing nursing education program will be conducted to improve the knowledge of all nursing personnel. The importance of preoperative teaching, postoperative care including benefits of early ambulation, various complimentary therapy interventions can be taught to the nursing students. The nursing administrator can take initiatives to implement the early ambulation on the immediate postoperative periods in the surgical wards, periodic pain assessment protocol and identify the level of satisfaction toward postoperative care. It is very necessary to embark on more research in the field

of early ambulation, postoperative anxiety, satisfaction, and postoperative recovery among abdominal surgery patients. Early ambulation is a vital task with a significant priority of nursing practice in surgical units.

CONCLUSIONS

Overall, the current study findings endorsed similar studies that showed the positive effect of early ambulation on reduction of postoperative anxiety and cooperation toward postoperative management. Therefore, it is concluded that early ambulation is very reliable, feasible, and simple nursing task for early postoperative recovery thereby it reduces the length of hospital stay. The present research results supported our research hypothesis that early ambulation has a significant positive effect on patients' quality of postoperative recovery among surgical patients. Early ambulation for postoperative patients is much effective in reducing the anxiety level and gaining high cooperation during postoperative care.

Conflicts of interest

There are no conflicts of interest.

Authors' contributions

V. Uma was involved in conducting the research and collecting the parts together, drafting the article, doing the visits and, following up process with the patients, Jasmine collecting data, Sruthikamal and V. Uma doing data analysis and revising the article critically.

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