

## Effect of Preoperative Education on Postoperative Pain Management among Adult Patients undergoing Elective Surgery in Traghan Teaching Hospital, Libya State 2024 : A quasi- experimental study

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### Abstract:

Postoperative pain can progress to become chronic pain and lead to decrease quality of life. Preoperative education is effective nursing intervention strategy on Postoperative pain management to prevent Postoperative complications. In addition, it assists patients in overcoming their fears about upcoming Surgery and improved outcomes. by providing educational program to improve their health condition. Postoperative aimed to assess effect of Preoperative education on Postoperative pain management among adult patients undergoing elective surgery. Quasi- experimental study was conducted in Traghan Teaching hospital, Libya state, to evaluate the effect of preoperative education on adult patients undergoing elective surgery, from march to July 2024. Study was included Thirty-three patients. The data was collected by interviewing questionnaire, Postoperative parameters, and Postoperative exercise checklist, in two phases (pre & postoperative). The data was analyzed by (SPSS). Results and discussion: the study showed that most of participants (97%) had benefit from the educational program instructions by mean (1.03). and a lot of participants (90%) had effective postoperative pain control. Hence where our study was found that Preoperative instructions on pain control, patients' compliance with postoperative exercises such as deep breathing and coughing exercises. The study found out that (87%) of participants who had previous surgery did not had receive any educational program before so the study group had poor knowledge about preoperative education for Postoperative. The study found that there is no significant statistical association between patient demographic data and level of satisfaction, and between quality of care and patient performance by p value (0.06). The preoperative teaching program is effective in reducing the level of anxiety. We are recommended for medical institutions to adopt preoperative education program as a protocol of operations.

**Keywords:** assessment, Preoperative education, Postoperative pain management, Adult patients, elective Surgery, Libya state

### Introduction:

The annual number of surgical operations performed is increasing throughout the world. With this rise in the number of surgeries performed, so too, the challenge of effectively managing postoperative pain. In Africa, there are scanty data available that make use of multi-center data to characterize the quality of postoperative pain management.<sup>1</sup>

Surgical care is essential to manage various health conditions. It is the solution to improve the patient's condition and reduce the risk of death for millions of patients. However, its harm lies in the pain and complications associated with it postoperative.<sup>2</sup>

Continue pain after surgeries is a major cause of chronic pain.<sup>3</sup>

Postoperative pain may lead to significant negative physical consequences including restricted mobility, delayed wound healing, and respiratory impairment, DVT.<sup>4</sup>

Preoperative educations centered on a biomedical model of anatomy and pathoanatomy as well as procedural information has limited effect in reducing postoperative pain after TKA surgeries. Preoperative educational sessions that aim to increase patient knowledge of pain science may be more effective in managing postoperative pain.<sup>5</sup>

Pain in elderly surgical patients remains undermanaged. Simple strategies such as emphasizing preoperative education may have a large effect in pain management.<sup>6</sup>

The inadequate management of acute postoperative pain among adults is well documented.<sup>7</sup>

More intervention patients than comparison patients reported medication side effects and were encouraged to use nonpharmacologic methods for reducing postoperative pain. Intervention patients also reported the effects of pain on mood and the use of nonpharmacologic methods more frequently than comparison patients. Preoperative pain management education may increase patients' knowledge in key areas of postoperative pain management to prevent negative outcomes.<sup>8</sup>

Preoperative nursing visitations is a method used to prepare the patient's knowledge and psychology for surgery, in order to prevent preoperative anxiety and decrease postoperative pain as well as have a positive impact on the smooth running of the surgical process.<sup>9</sup>

Although there are possibilities of pain relief after surgery, they are still used insufficiently. Postoperative pain management in Poland needs considerable improvement. Improvement of pain management quality by supporting and developing practical guidelines or management algorithms for nurses, facilitating the effective implementation of new pain management practices.<sup>10</sup>

Although there are many recommendations and guidelines for adequate pain assessment, the quality of postoperative pain documentation does not meet the acceptable standards.<sup>11</sup>

Chronic pain after TKA is considered multifactorial and can be influenced by physiological factors, such as central pain mechanisms, and psychosocial factors. There is a scarcity of high-quality evidence and guidelines on effective treatments of chronic pain after TKA. The lack of evidence-based treatment guidelines leads to inadequate access to optimal treatment and the risk of patients feeling abandoned by the health care system. The inclusion of early postoperative exercises to avoid patients developing chronic pain after TKA but have not found this approach effective. However, a combination of exercise and education treatment modalities could induce beneficial treatment effects in patients with chronic pain after TKA, but to our knowledge, this has never been investigated.<sup>12</sup>

Pain is a common occurrence for the hospitalized elderly, and may often be under recognized and inadequately managed. Insufficient pain management can lead to the sequelae of emotional distress and depression, delirium, anxiety, sleep disturbances, and physical disabilities, as well as increased health care costs. Effective pain management of the older adult begins with pain assessment using the proper tools. Treating post-procedure pain in the elderly patient requires an understanding of the normal changes associated with aging and the impact on medications, and multimodal analgesia can be the best approach.<sup>13</sup>

Postoperative pain has long been recognized as a critical concern in patient recovery. Effective treatment of postoperative pain is critical not only for the immediate well-being of the patient but also to prevent chronicity of pain and its associated complications. Traditionally, opioids have been the mainstay of postoperative analgesia, despite their adverse effects and risk of addiction. The adoption of these strategies in clinical practice can significantly improve surgical outcomes and the quality of life of elderly patients.<sup>14</sup>

Practice guidelines for acute pain management in perioperative patients recommend providing consistent perioperative pain education that includes medication and behavioral techniques to control pain. However, literature indicates that most nurses deliver patient education based on personal preferences, time limitations, and availability of teaching aids.<sup>15</sup>

Effects of patient education on perioperative analgesic utilization are not well defined. We designed a simple pain management educational card for total [knee arthroplasty](#) (TKA) patients and retrospectively reviewed clinical data before and after implementation to test the hypothesis that more informed patients will use less opioid.<sup>16</sup>

Patients who experienced postoperative complications and pain were less likely to be highly satisfied or have no regret. Notably, postoperative pain had a more significant effect on satisfaction and regret after surgery, suggesting focused postsurgical pain management is an opportunity to substantially improve patient experiences. More research and patient education are needed for managing expectations of postoperative pain, and use of adjuncts and regional anesthesia.<sup>17</sup> Guidelines for

postoperative pain treatment are based on patients' pain scores. Patients with an intermediate Numeric Rating Scale (NRS) score of 5 or 6 may consider their pain as either bearable or unbearable, which makes it difficult to decide on pain treatment because guidelines advise professionals to treat pain at  $NRS > 4$ . Educating patients in using an NRS score for pain might improve adequate pain treatment.<sup>18</sup>

### Materials and method:

A quasi-experimental study was conducted to evaluate the effectiveness of preoperative education on postoperative pain management among adult patients undergoing elective surgery. Was performed during the period from May to July 2024. This study was conducted in Traghan teaching hospital. The study was including all adult patients admitted to traghan teaching hospital for elective surgery during period of study, both gender and willing to participate. Exclude emergent patients who come with critical condition.

### Sample size:

include all patients planned for elective surgery during the period of study (total coverage)  $n = 33$ . The data was collected by: interview questionnaire and observational checklist.

### Data collection technique:

Data was collected in three phases: pre-test and application of program and postoperative assessment phases. Data was analyzed using descriptive statistics (SPSS) version 28 to determine the effect of preoperative education on outcome measures. The identified individual patient interview responses were used to generate average reported efficacy scores for each question on pain management, anxiety, and preparedness. Qi square test was used for correlation p value (0.5). Data was presented in tables and figures.

### Ethical consideration:

Approval letter was taken of our study by the ethical committee of the college and the institutional research board of the university. Permission was taken from the hospital general manager. Before obtaining the patients' consent was be informed about the purpose and nature of the study.

### Results :

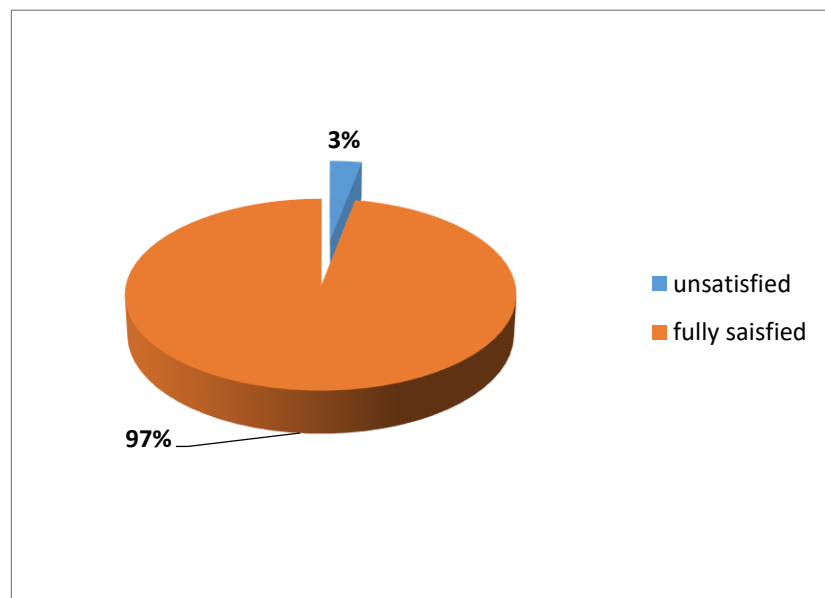


Figure (1) Surgical Patients Level of Satisfaction about Preoperative Teaching Program

Table (1) Demographic Data of The Study Group n=33

Item	Frequency	Percentage
Gender	Male	13 39.4%
	Female	20 60.6%
Age	18-30 years	8 24.2%
	31-40years	14 42.4%
	41-50 years	9 27.3%
	Above 51 years	2 6.1%
Marital Status	Single	7 21.2%
	Married	25 75.8%
	Divorced	1 3.0%
Education	Illiterate	1 3.0%
	Primary	6 18.2%
	Secondary	7 21.2%
	University	19 57.6%
Occupation	Self employed	7 21.2%
	Employed	17 51.5%
	Housewife	6 18.2%
	Retired	3 9.1%
Residence	City	20 60.6%
	Village	13 39.4%

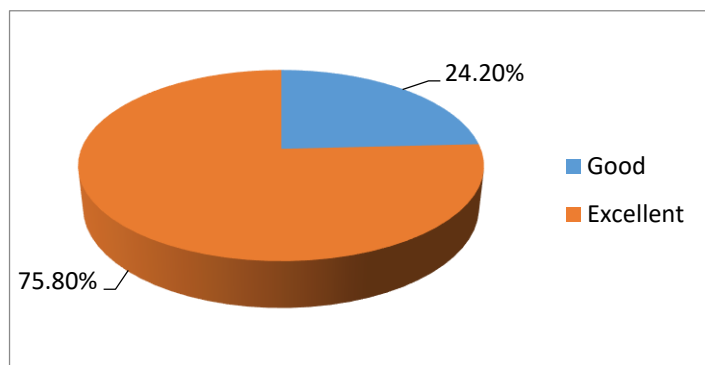


Figure (2) Surgical Patients Comment on Their Postoperative Pain control Experience

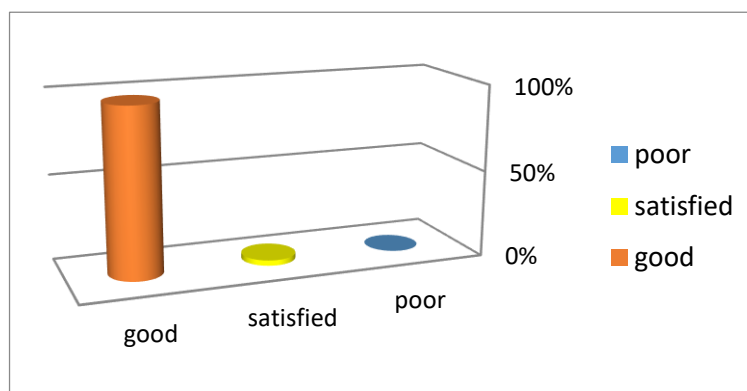
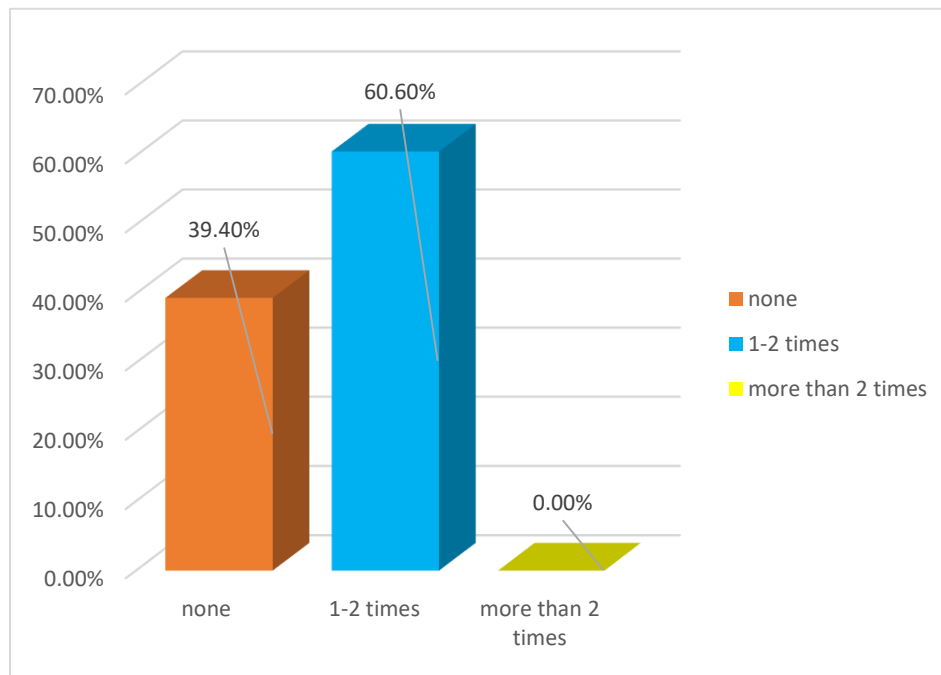


Figure (3) Surgical Patients Level of Performance of Cough and Breathing Exercise Postoperative

**Table (2) Study Group Performance of Cough and Breathing Exercise Pre operatively**

Item	Done	Not done
<b>Nursing assessment</b>		
patient is awake	33(100%)	0(0.00%)
patient communicate with you	33(100%)	0(0.00%)
ask patient is a procedure explained to his	33(100%)	0(0.00%)
the patient in semi fowler position and leaning forward	31(93.9%)	2(6.1%)
<b>Coughing exercise</b>		
splint the incision site by below	29(87.9%)	4(12.1%)
inhale and exhale deeply and slowly through the nose three time	29(87.9%)	4(12.1%)
cough deeply once or twice	30(90.9%)	3(9.1%)
<b>Breathing exercise</b>		
the patient sit in semi fowler position and leaning forward	30(90.9%)	3(9.1%)
support the diaphragm by hands	29(87.9%)	4(12.1%)
inhale and exhale deeply and slowly .	31(93.9%)	2(6.1%)
inhale deeply through the nose	31(93.9%)	2(6.1%)
exhale slowly through the mouth	28(84.8%)	5(15.2%)

**Figure(4) frequency of patient experience pervious surgical operation**

**Table (3) Postoperative vital signs assessment of the study group**

Item	After recovery Postoperative	4/hours Postoperative
Temperature	35.4	36.6
Systolic blood pressure	119.9	122.5
Diastolic blood pressure	68.6	72.8
Pulse Rate (PR)	80.8	79.7
Respiratory rate (RR)	19.5	18
<b>Oxygen saturation (SpO2)</b>	<b>96.5</b>	<b>97.8</b>

**Table (4) previous surgical experience of study group**

Item	Yes	No
Personnel habits	5(15.2%)	<b>28(84.8%)</b>
Chronic illness	10(30.3%)	<b>23(69.7%)</b>
Pervious information about preoperative teaching	6(18.2%)	<b>27(81.8%)</b>
Level of anxiety before surgery	20(60.6%)	<b>13(39.4%)</b>
Receiving information about surgery	30(90.9%)	<b>3(9.1%)</b>
Details of surgical operation	30(90.9%)	<b>3(9.1%)</b>
Postoperative Pain control and management	30(90%)	<b>3(9.1%)</b>
Level of anxiety post-surgery	4(12.1%)	<b>29(87.9%)</b>
Benefits of instruction post operatively	32(97.0%)	<b>1(3.0%)</b>
Effect of post-operative pain on post-surgery on quality of life	6(18.2%)	<b>27(81.85%)</b>

**Discussion:**

The objectives of this study are to assess effect of preoperative education on postoperative pain management among adult patients undergoing elective surgery. The discussion in this chapter based on study finding and objectives which that enables the patients to pain control, reduce postoperative complications and increase patient satisfaction. The study was included (33) patients, more than half of whom 20 represent (60.6%) were female that means the most of surgical operation done during this period for female. and less than half 14 represent (42.4%) were aged from (31-40 years) that means the study group in middle age. Most of them were married represent (75.8%). More than half of them 19 were university graduates represented (57.6%) that reflect the most of participant tacked more benefit from educational program and were prepared to perform surgeries. The current study reflected that the majority of participants 28 represented (84.8%) did not have any bad habits such smoking and alcohol that affect or interfere with anesthesia and lead to benefits from educational program. and also, more than half 23 represent (69%) of the patients did not have any chronic disease that required special preparations. This study reflected that the variation in the level of anxiety in the preoperative stage, it found that 20 of the patients represent (60.6%) reported a high level of anxiety, and a significant decrease in the level of anxiety appeared in the postoperative stage, as it was found that most of 29 represent (87.9%) did not report anything, this were mean that the decrease in the level of anxiety indicates that the program was provided before surgery had a significant impact in reassuring and supporting the patient psychologically and the educational program is more affective on postoperative. This finding was consistent with the line of conclusion of studies was conducted by (Akinsulore et al, 2015; Lobo.2016) in Nigeria and India which concluded that providing sufficient information helps the patient reduce anxiety.

about the patient's knowledge of preoperative education, the current study shown that more than two-thirds 27 represent (81.8%) of patients had poor knowledge of the importance of preparation before surgery and exercise in the post-operative stage. This has connection with the lack of previous surgical experience and illiteracy status by mean 1.81, and improved to good outcomes about patient

knowledge and practice by mean 1.03, this was mean most of study sample 32 represent 97% in post-operative have a benefit from educational program, and the content had improved patients' awareness and skills on post-operative exercise. This finding agree with a line of result study by (semnani et al .2014) reported the preoperative instruction gain patient knowledge and improve the performance of the post-operative exercise .the present study illustrate that the most participation was showed that they had excellent to good (75%) expressions of pain control after the operation, that is mean preoperative instruction provided on pain control and compliance of patient with exercise after surgery such as deep breathing helps patients to be able to control pain .The current study showed that the most of participants (90%) had effective postoperative pain control. Hence where our study was found the Preoperative instructions on pain control and patients' compliance with postoperative exercises such as deep breathing and coughing exercises help patients to be able to control pain. Our results were consistent with the results of studies conducted by (oshodi, 2007; odonnell, 2015), which demonstrated that preoperative exercises are effective in reducing postoperative pain surgery. In the context of the information provided about preoperative exercises, the patient was shown to be effective in reducing postoperative pain. The recovery after surgery is the main nursing aspect after surgery so Monitoring vital signs is the most important part while providing nursing care after surgery. The current study showed that vital signs after surgery include an increase in respiratory rates, pulse, and blood pressure, and a decrease in temperature immediately after surgery this is due to exposure to cold environment in the operation room or anesthesia effect , but after 4 hours It was reported that most patients had normal vital signs look at the table (4) a slight decrease in the pulse rate (PR) can be explained by decrease in anxiety and tension after preoperative education which helps achieve a relative stability in heart rate , a decrease in respiratory rate (RR) may indicate an improved ability to relax and breathe deeply as a result of the education provided before surgery which contribute to reduce pain and a general feeling of comfort , and increase in the rate of oxygen in the blood (SaO2) after 4 hours may be evidence of improved ventilation and gas exchange due to teaching patients how to breathe properly and deal with pain after surgery , all these parameters tendency toward the recovery process. Post-operative complication considered as an important change in the recovery of the patient. this study showed that (81.85%) of patients did not suffer from any complications resulting from pain after the operation, and this is a good indicator of the effective impact of the information of educational program regard coughing and breathing exercise provided before surgery on quality of life. this study compared with study conducted by (Lobo (2016) has similar result was reported regard effectiveness of preoperative teaching in enhancing postoperative outcomes showed that most (98.4%) of patients did not develop postoperative complications (17). Finally, the results of our study showed that most of the patients (97%) were completely satisfied in addition many patients had gained a lot of the benefits which provided by the program and felt comfortable and reassured and that the information provided to them before surgery was sufficient. This is a justifiable finding that preoperative education positively increases the optimal level of satisfaction, benefits, and outcomes. So is an important nursing responsibility to achievement optimal satisfaction level and benefits. this finding supported with previous studies (Fasullo et al .2018; best, etal ,2018; white,2015) suggest to, the provision preoperative education positively increase patient satisfaction and outcome. The null hypothesis is rejected and research hypothesis (H1) stated earlier There is a positive relationship between a patient's participation in a preoperative educational program ability to effectively control pain after the operation.

### Conclusion:

Education interventions for patients before surgery show promise for improving postoperative outcomes. Conclusion The majority of patients got a lot of benefits after the tutorial. The preoperative teaching program had a positive effect in reducing the level of anxiety. Preoperative instructions and demonstration of the effectiveness of postoperative exercises in reducing postoperative pain - Effectiveness of preoperative preparations on patient satisfaction after surgery. Most (81.85) % of patients did not develop postoperative complications that influence on their quality of life. There is a negative statistically significant relationship between post-operative anxiety and the level of education

**Limitations:** Firstly, hospital administrators should implement preoperative education to improve postoperative pain management. Finally, further research for more patients and long times required to identify other factors that might contribute toward application of preoperative education for postoperative pain management and to cover different areas of Libya state.

**Conflict of interests:** The authors declare no conflicts of interest with respect to the research, authorship, or publication of this study.

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