Effect of Preoperative Patient Education on Quality of Recovery for Patient Undergoing lumber discectomy

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Abstract

Background: Lumbar discectomy is one of the most common operations performed in spinal surgery practice and preoperative patient education (PE) has been used by many hospitals for transaction with patient's overall satisfaction. **The aim** of the current study was to evaluate the effect of preoperative patient education on quality of recovery for patient undergoing lumber discectomy. A quasi experimental **research design** was utilized. **Setting,** the study was conducted at Orthopedic surgery department at Mansoura University Hospitals, Egypt. **A convenience sample** consisting of 100 patients who present in hospital during the period of the program. **Two tools** were used in data collection; **tool 1** a structured interviewing questionnaire, part 1: Socio-demographic characteristics of patients, part 2: Patients' past and present medical, surgical history. part 3 patients' habits. **Tool 2:** Quality of Recovery Scale. **Results** revealed that there was statistical difference in mean of all quality of recovery scale domains between the pretest and posttest and a highly statistically significant difference between the pretest and posttest regarding overall quality of recovery scale with (p. value 0.001). **Conclusion:** Application of Preoperative Patient education program has positive effect on quality of recovery for patients after lumber discectomy. **Recommendation;** Similar studies are needed to assess the long-term effects of such educational programs and establishment of health care educational center in the orthopedic surgery department.

Keywords: Patient Education, Quality of Recovery, lumber discectomy

Introduction

Surgical procedures be able to basically contrarily impact a patient's quality of life, making a sensation of distress, indeed within the absence of specific complications **(Lee, Kim, &Kang, 2015).** Moreover, poor postoperative recovery may lead to expanded clinic costs and diminished patient's fulfillment **(Poitras, Beaule, & Dervin, 2012)**Subsequently quality of recovery is reflected a vital consequence after surgery and anesthesia, that can give high-quality of recovery, lessen complications, and minimize the time to return to every day exercises**(Murphy, et al., 2011).**

Quality of recovery (QOR) is an imperative degree of the early postoperative well-being status of patients **(Bowyer & Royse, 2016).** Enhanced recovery after surgery (ERAS) may be a combination of different perioperative patient care strategies that coordinated evidence-based intercessions which reduce surgical stress, keep up the postoperative physiological function and accelerate recovery in patients undergoing major surgery **(Chetty & Ehlers, 2009 and Brown, et al., 2018).** Postoperative recovery well-defined as a complicated and multidimensional process that requires a universal vision of the resumption of capacities and homoeostasis after surgery **(Das, Pradhan& Pradhan 2015).**

Postoperative recovery portrayed three essential periods: an early period, described as the duration earlier discharge from the Post Anesthesia Care Unit (PACU)which is assessed with the Postoperative Quality Recovery Scale (PQRS), which evaluates physiologic and biologic outcomes, an intermediate phase encompassing the period between admission to the surgical ward and discharge from hospital, successfully assessed with estimation of the quality of recovery and the postoperative wellbeing status by instruments that reflect symptoms as well as activities of daily living,

such as the quality of recovery scale. Late phase, which extends after hospital discharge until the return to usual function and activities **(Rosen, 2015).**

The QoR-40 could be a recovery-specific and patient-rated survey that contains 40 items measuring five measurements: physical comfort, emotional state, physical independence, psychological support, and pain **(Stark, Myles, & Burke, 2013).** Concurring to a study conducted by Leslie, et.al, detailed that the QoR-40 score was responsive, substantial, and solid in cranial and spinal surgery patients. Subsequently, the QoR-40 score is appropriate to survey the impact of intercessions in neurosurgery that are pointed at progressing the quality of recovery and moving forward persistent fulfillment with care **(Leslie, et al., 2003& Gornall, et al., 2013).**

Surgical intercession is the discipline and talent of managing issues, distortions, and wounds by means of cuts or management, particularly through appliances. Surgical procedure incorporates the collaboration between the patient, the nurse, and the specialist. Surgical intercessions are thought critical around the world, among an anticipated 234 million operations implemented every year. Lumbar discectomy is one of the foremost commonly performed spinal surgical strategies for the treatment of a wide assortment of pathologies **(Das, et al., 2015)** and **Aslam, etal., 2015)**

Universally Low back pain (LBP) particularly has been evaluated to influence 80–85% of the world's populace at a few points amid a lifetime related to degenerative disc illness and lumbar disc herniation) LDH) that has gotten to be the foremost common cause. In Egypt, more than 80% of the populace will endure low back pain (LBP) at a few points in their lives **(Zhang, Guo & Wu, 2010).** LBP is the most factor causing constraining action in patients less than 45 years old, the second most visit cause for doctor's visits, and the third most common reason for surgical procedures. LBP is of noteworthy financial significance because it influences patients' quality of life, may lead to a misfortune of efficiency incidentally and enormous therapeutic and roundabout costs, or indeed lasting inability. In this way, a successful understanding of LDH, its roots, and how to suitably treat LDH is of significant importance **(Hwang, et al ., 2019).**

Lumbar discectomy could be a surgical method to remove a herniated or degenerative disc within the lower spine that can be performed by a neurosurgeon or an orthopedic specialist through an open or negligibly invasive procedure. Discectomy may be suggested in case physical treatment or medicine fail to diminish leg or back suffering or in case signs of nerve harm, such as weakness or loss of feeling in legs. There are conventional strategies, called laminotomy and discectomy, or with a more current strategy called a microdiscectomy. Microdiscectomy is becoming to be the standard surgery for lumbar disc herniation. Since the specialist performs the operation with a surgical microscope and supposed to be less burdening on patients, simpler to perform avoids scarring around the nerves and joints, and creates a difference in patients retrieve more rapidly **(position position, et al., 2018).**

Surgeries typically have numerous complications, including general complications as bleeding, wound infection, clots, and responses to anesthesia. Postoperative complications associated to lumber discectomy comprise complications related to immobility especially respiratory, digestive, vascular, integumentary and musculoskeletal problems. Also, complications related to surgical procedure as neurological impairment, urinary problems, cerebrospinal fluid leaks, cauda equina syndrome and surgical trauma or hematoma, spinal instability requiring spinal fusion and residual leg and back pain. also, wound complication may occur **(Pearce, 2017).**

Nurses endure a crucial position in elevating a safe besides effective perioperative sequence for patients enduring lumbar discectomy. preoperative patient education offers clear instruction on the major aspects of the preoperative, postoperative, and post-hospital recovery periods. Unlike traditional informed consent and discussion with the surgeon, preoperative education details what patients should do prior to surgery, in addition

to what should expect during their hospital stay and after discharge from the hospital **(Potter, et al., 2018).**

Preoperative teaching could be a multi-disciplinary approach that requires harmonization of information between nurses, surgeons, anesthesiologists, dieticians, and physiotherapists to coordinate care for patients. Pre-operative nursing care is primarily focused on decreasing pain, neurological assessment and ensuring adherence to a proper diet, physical activity and exercises training, smoking cessation, control of medical comorbidities as diabetes mellitus and hypertension etc, reducing surgical stress response and promotion of patients‟ autonomy. A nurse's obligations also include feeding the patient with material on how to prepare for surgery, postoperative care, and reassuring the patient. The first problems that occur after surgery are related to the patient's physical reaction to general anesthesia, so care at this stage is centered on alleviating the symptoms **(Dennison & Farrell, 2017).** Satisfactory plus necessary preoperative patient knowledge be able to decline these possible troubles then simplifies expectancies associated with patient postoperative care **(Taher & El-Hagg, 2017).**

The postoperative phase originates with the end of the surgical procedure and lasts after discharge from the hospital. The nurse has to observe vital signs, observe the surgical wound, attention should be paid to the patient's neurological condition including an assessment of pain intensity, limb motion, sensory and bladder functions and low back pain exercise. The nurse participates in physiotherapy aimed at the prevention of thromboembolic and respiratory complications, and conducts physiotherapy to help the patient regain mobility. Nursing care also provides basic information on self-care, wound care, providing clear information about activity allowed and prohibited to prevent recurrence and LBP before discharge **(Adugbire & Aziato, 2018).**

Significance of the Study:

Lumbar disc herniation is one of the greatest public reason of lower back pain related with leg pain, and occurs 15 times more frequently than cervical (neck) disc herniation. Low back pain (LBP) specifically has been estimated to affect 80–85% of the world's population at some point during a lifetime related to lumbar spinal stenosis that has become the most common cause. In Egypt, the prevalence is 1,679,060 out of 76, 117, 4212 estimated population **(Mohamed, etal., 2013).**The number of surgical treatments has increased dramatically, especially in the US, where the number of spinal discectomy per year has increased by 55% during the last decade **(Sangaré, et al., 2019).**

High-level of quality sequels for the patients enduring surgery be able to accomplished over collaborative energies of several health personnel. Nurses, become the member of the single greatest group of health specialists, necessity usage the chance to create an enormous effect on the quality of treatment. In addition to meet a main confront in delivering the clients with the maximum basic material concerning postoperative performances in a limited timeframe **(Musa & Ali, 2018).**

Aim of the study

The aim of this study was to assess the effect of preoperative patient education on quality of recovery for patient undergoing lumber discectomy

Research hypothesis:

There will be a significant positive effect of preoperative patient education on quality of recovery for patient undergoing lumber discectomy

Subjects and Methods

Research Design

A Quasi-experimental research design was utilized in this study.

Research Setting

This study was conducted at orthopedic surgery department at Mansoura University Hospitals, Egypt.

Subjects

A convenience sample of 100 patients was determined by using the following equation according **(Thompson, 2012)**

$$n = \frac{N \times p(1-p)}{\left[\left[N-1\times\left(d^2 \div z^2\right)\right] + p(1-p)\right]}$$

N=total patient population size of 150who attended the orthopedic surgery wards (male and female) of Mansoura university hospital. During year 2020

Z = confidence levels is 0.95 and is equal to 1.96

D= The error ratio is = 0.05

P= The property availability ratio and neutral = 0.50

Tools for Data Collection Two tools were used in data collection:

1. **Tool 1 A structured interview questionnaire, developed by the researchers in simple Arabic language consisting of 3 parts:**

   Part 1: Sociodemographic data sheet: Which involved 7 closed ended questions (age, sex, marital status, level of education, occupation, residence and monthly income).

   Part 2: Medical History Data Sheet: comprised of 6 closed ended questions; previous hospitalization, previous Medication, history of allergy, presence of chronic diseases, ward/unit male or female, and days on admission.

   Part 3: Patient's Habits which included 5 closed ended questions (smoking habits, smoking type, quite smoking, tea or coffee drinking and number of cups)

2. **Tool (II): Quality of Recovery Scale:** The QoR-40 is a global measure of quality of recovery. It incorporates five dimensions of health: patient support, comfort, emotions, physical independence, and pain; each item is graded on a five-point Likert scale. The QoR-40 scale was receptive, valid, and reliable in cranial surgery and spinal surgery patients. Consequently, the QoR-40 score is appropriate to evaluate the effect of preoperative patient education on quality of recovery for patient undergoing lumber discectomy that are directed at advancing the quality of recovery and expanding patient satisfaction with care **(Myles, etal., 2000& Terkawi, et al., 2017).**

Scoring system:

QoR-40 scores range from positive items were scored from 1 (worst) to 5 (best); scores were reversed for negative items, 40 (extremely poor quality of recovery) to 200 (excellent quality of recovery).

- Emotional state (q2, q9, q12, q28, q36, q37, q38, q39, q40)
- physical comfort (q1, q5, q10, q11, q19, q20, q21, q24, q25, q26, q27, q34)
- psychological support (q13, q14, q15, q16, q17, q18, q34)
- physical independence (q3, q4, q6, q7, q8)
- Pain (q22, q23, q29, q30, q31, q32, q33)

Validity: The content validity of the tool was verified through a board of seven professionals from medical staff and Medical-Surgical nursing staff &, adjustments were performed centered on their views.

Reliability: Assessment reliability of the planned tools was measured utilizing Cronbach's alpha test, indicated in height reliability of the tools as: Tool II (QoR-40): (0.65)

Pilot Study: was conducted on 10 patients (10%) in order to test clarity and applicability of the tool. The pilot study was also utilized to appraise the time required for every subject to fulfil the questions. Adjustments were completed established on the outcomes of the pilot study. The patients contributed in the pilot study were eliminated from the main study sample.

Ethical Considerations:

An official permission was attained from dean of faculty of nursing at Mansoura University directed to director of Mansoura University Hospitals obtain the permission for data collection before performing the study clarifying the aim. An oral consent was taken from all patients contributed in the study after explanation of purposes and nature of the study; they were given the right to withdraw at any time, or reject to answer particular question without giving any rationale. The researcher confident conserving anonymity and confidentiality of subject's data.

Field Work

The definite field work began from the starting of May, 2020 to the end August 2020. The study encompassed the subsequent phases:

Preparatory Phase

Preparatory phase established from the beginning of May, 2020 to the beginning of June, 2020. (a period of one months). It comprised developing the structured tools and the preoperative -educational program based on the needs identified, goals, priority of care and expected outcomes were formulated. An illustrative structured colored pressures, pamphlets and posters were prepared to be introduced to patients as a guide for all of pertinent data related to interventions.

Implementation Phase

- This phase initiated from the start of June, 2020 to the end of August, 2020. The program was fulfilled in the duration of 3 months four times a week (Sunday, Monday, Tuesdays and Thursday) from 9.00 a.m. to 12 mid-day considering patient's hospital stay range from 5-10 days comprising pretest, program implementation, and post-test; the program was carried out over 10 to 12 weeks.
- For the pre-test; the time consumed to fill the demographic, medical history, patient habits, and quality of recovery scale was from 20 to 30 minutes for studied participant through form on Google drive link to decrease transmission of infection during pandemic Covid 19 through sharing sheets and pens, quality of recovery scale was filled from the patients preoperative to determine most common signs and symptoms regarding physical comfort, pain, psychological and emotional problem.
- For post-test; the time taken was about 15-20 minutes for testing quality of recovery scale with the form also on Google form.

Preoperative Patient Education:

The educational program was displayed in 4 theoretical and practical sessions starting the program preoperatively by providing the patient with basic knowledge, skills and care according to patient's need and to fit into their interest and levels of understanding. It was conducted through presentation and group discussions rich with pamphlets & oral explanation, pressures and posters.

- Each session started by a summary about what had been given through the previous session then the objectives of the new topics, taking into consideration the use of simple language to suite the level of the patients. The patients were presented all the time of intervention sessions and the duration of each session was variable, according to its contents as well as the patient's response. Discussion, motivation and reinforcement during sessions were used to enhance learning. Direct reinforcement in the form of a copy of the content was given as a gift for each client to use it as future reference.
- **First session;** was theoretical session was conducted through face to face interview which start immediately after pretest included "Overview about lumber disc herniation; definition, risk factors and causes, manifestations, lab investigation, types of surgical intervention, anesthesia, routine medical care, and possible complications".
- **Second session**; was a combination between theoretical and practical session was conducted through face to face interview the aim of this session is to provide the patients with preoperative physical preparation as skin preparation, proper nutrition and time of food restrictions before surgery, gastrointestinal preparation, bowel preparation, urinary elimination, safety precautions, medications, possible connected tubes after surgery, postoperative exercises with demonstration as performing isometric exercise 10 minutes3 times daily such as: Ankle Pumps, heel slides, abdominal contraction, Wall squats, Straight leg raising, Hamstring stretch, Single Knee to Chest Stretch, range of motion exercise, deep breathing, coughing exercises, leg exercises lower back exercises to relieve pain , how to stand, sit,, how to get out of bed, how to walk and perform activity of

daily living postoperative and prevent recurrence.

- **Third session;** was a combination between theoretical and practical session was conducted through face to face interview the first aim of this session is to provide the patients with preoperative psychological preparation by focuses on the client's ability to verbalize their anxiety and expectation, provide detailed information rich with videos and lesser extent to internet, answers to any questions and to be familiar with health team. The second aim how to providing instructions about post operatively associated symptoms as (how to manage pain non pharmacologically, wound care, fatigue, anxiety, nausea and vomiting, sleep disturbance, dizziness and drowsiness, and postoperative instruction regarding proper posture assumed during sleeping, sitting, standing, bending, car driving and performing house hold activities.
- Fourth session: was a combination between theoretical and practical session was conducted through face to face interview this session done for patients postoperatively focuses on the client's ability to verbalization and return demonstration of postoperative exercises, needed instructions and postoperative expectations resulting from the surgery.

Evaluation Phase

Evaluating the effect of preoperative patient education on quality of recovery for patient undergoing lumber discectomy by reassessed quality of recovery scale, comparing results pre and post implementation of the program

Statistical Analysis

Data were fed to the computer and analyzed using IBM SPSS software package version 23.0. (Armonk, NY: IBM Corp) Qualitative data were described using number and percent. The Kolmogorov-Smirnov test was used to verify the normality of distribution Quantitative data were described using range mean, standard deviation. Significance of the obtained results was judged at the 5% level. The used tests were Marginal Homogeneity Test: Used to analyze the significance between the different stages, Chi-square, independent t-test, and person correlation: For normally distributed quantitative variables, to compare between two periods.

Results

Table 1: Distribution of socio demographic data among studied participant n=100

Variables	N	%
Age group		
<18-30	15	15.0
30-<40	20	20.0
40-<50	25	25.0
50-60	40	40.0
Sex		
Male	35	35.0
Female	65	65.0
Residence		
Rural	85	85.0
Urban	15	15.0
Marital status		
Single	10	10.0
Married	80	80.0
Widow	10	10.0
Education level		
Illiterate	15	15.0
Read and write	5	5.0
Secondary education	50	50.0
Higher education	30	30.0
Occupation		
Worked	45	45.0
Not worked	55	55.0
Income		
Enough	60	60.0
Not enough	40	40.0

Table (1): **This table shows Distribution of socio demographic data for patient**: 40% of the patients their age ranged from 50 to 60 years old. 65% of the patients were female compared to the 35 % were males. 85% of patient come from rural area. Regarding marital status 80% of patient participants were married and 50% of them receive secondary level of education. According to occupation 55% of participant not working while 60% of them have enough income.

Table 2: Frequencies distribution among studied participant regarding health history n=100

Variables	N	%
Previous Hospitalization		
Yes	60	60.0
No	40	40.0
Medication History		
Yes	40	40.0
No	60	60.0
History of Allergy		
Yes	10	10.0
No	90	90.0
Previous Surgery		
Yes	45	45.0
No	55	55.0
Previous Back Surgery		
Yes	25	25.0
No	75	75.0
Surgical Ward		
Male Orthopedic Surgery	35	35.0
Female Orthopedic Surgery	65	65.0
Admission Date		
>24 Hours	10	10.0
2 Day	45	45.0
3 Day	45	45.0

Table (2): **This table shows Frequencies distribution among studied participant regarding health history**: 60% of patient have positive previous hospitalization, 40% of the patients have medication history. 45% of patients have previous surgery and 25% have back surgery. Regarding surgical ward and admission data 65% of the patients admitted in female ward and 35 % admitted to male ward while 45% of studied participant admitted from two and three days with the same percent.

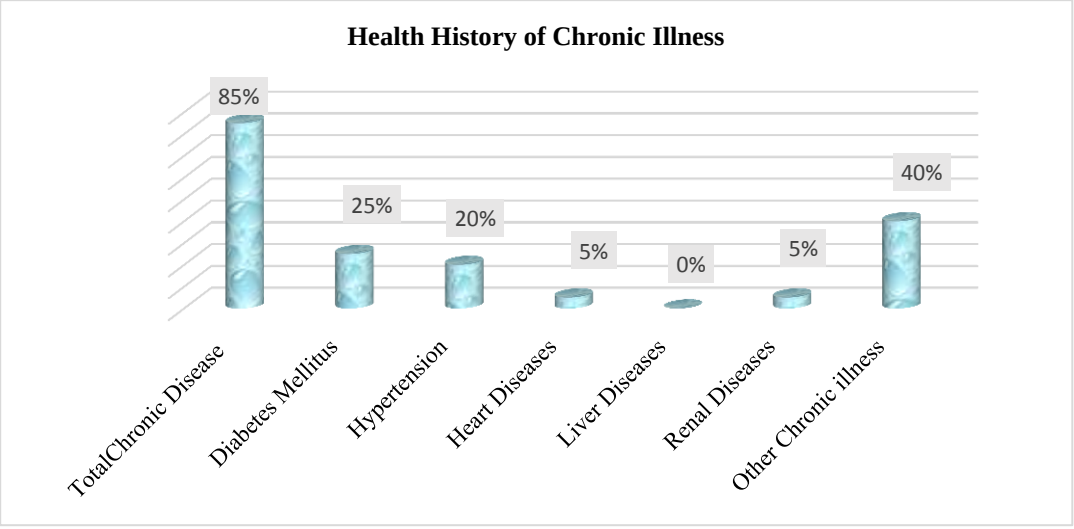


Figure (1): Frequencies distribution among studied participant regarding health history of chronic illness n=100

Figure (1): This figure shows Frequencies distribution among studied participant regarding health history of chronic illness, 85% of patients have chronic disease, 25% of patients have diabetes mellitus, 20% have hypertension, 5 % have heart disease and 5% have kidney disease.

Table 3: Frequencies distribution among studied participant regarding patient habits n=100

Variables	N	%
Smoking		
Yes	25	25.0
No	75	75.0
Type of Smoking		
Ciggrate Smoking	25	25.0
Quaid Smoking		
No	100	100.0
Tea or Coffee Drinking		
Yes	95	95.0
No	5	5.0
Number of Cups	2.45±1.12	

Table (3): This table shows Frequencies distribution for patient participant regarding patient habits: 25% were smoker and 25% of patient were cigarette smoking and 95% of patient drinking tea or coffee with mean±SD 2.45±1.12

Table 4: Comparison between pre and post-test regarding physical comfort domain of quality of recovery among studied participant n=100

Items	Follow up	None of the time		Some of the time		Usually		Most of the time		All of the time		p/value
Physical comfort		n	%	n	%	n	%	n	%	n	%	
Able to Breathe Easily	pre	29	29.0	0	0.0	8	8.0	40	40.0	24	24.0	23.57
	post	10	10.0	10	10.0	3	3.0	40	40.0	37	37.0	0.001**
Have A Good Sleep	pre	18	18.0	8	8.0	10	10.0	64	64.0	0	0.0	31.21
	post	5	5.0	0	0.0	15	15.0	77	77.0	13	13.0	.001**
Being Able to Enjoy Food	pre	10	10.0	0	0.0	33	33.0	27	27.0	30	30.0	12.09
	post	17	17.0	4	4.0	24	24.0	15	15.0	40	40.0	0.01*
Feeling Rested	pre	20	20.0	30	30.0	19	19.0	20	20.0	11	11.0	31.89
	post	6	6.6	11	11.0	16	16.0	32	32.0	35	35.0	.001**
Nausea	pre	48	48.0	16	16.0	12	12.0	15	15.0	9	9.0	12.23
	post	63	63.0	17	17.0	10	10.0	10	10.0	0	0.0	.016*
Vomiting	pre	42	42.0	31	31.0	11	11.0	9	9.0	7	7.0	8.872
	post	59	59.0	21	21.0	13	13.0	5	5.0	2	2.0	.064ns
Dry Retching	pre	60	60.0	24	24.0	12	12.0	4	4.0	0	0.0	15.71
	post	81	81.0	11	11.0	5	5.0	0	0.0	0	0.0	.001**
Feeling Restless	pre	0	0.0	13	13.0	12	12.0	24	24.0	51	51.0	58.99
	post	20	20.0	35	35.0	21	21.0	9	9.0	15	15. 0	.001
Shaking Or Twitching	pre	57	57.0	40	40.0	3	3.0	0	0.0	0	0.0	14.46
	post	81	81.0	16	16.0	3	3.0	0	0.0	0	0.0	.001**
Shivering	pre	66	66.0	34	34.0	0	0.0	0	0.0	0	0.0	22.36
	post	93	93.0	7	7.0	0	0.0	0	0.0	0	0.0	.001**
Feeling Too Cold	pre	59	59.0	28	28.0	13	13.0	0	0.0	0	0.0	6.798
	post	76	67.0	15	15.0	9	9.0	0	0.0	0	0.0	.033*
Feeling Dizzy	pre	40	40.0	50	50.0	10	10.0	0	0.0	0	0.0	26.76
	post	76	76.0	19	19.0	5	5.0	0	0.0	0	0.0	.001**

Chi-Square Tests *=Significant difference *p≤0.05 **= highly significance *p≤0.01 Ns= Non significant

Table (4): This table shows that comparison between pretest and posttest regarding physical comfort: there was highly statistically significant differences were seen in all items of physical, except Vomiting (p=0.06).

Table 5: Comparison between pre and post-test regarding emotional and Psychological support domain of quality of recovery among studied participant n=100

Items	follow up	None of the time		Some of the time		Usually		Most of the time		All of the time		X2-p.value
Emotional state		n	%	n	%	n	%	n	%	n	%	
Feeling comfortable	pre	12	12.0	33	33.0	32	32.0	23	23.0	0	0.0	81.240
	post	0	0.0	13	13.0	5	5.0	53	53.0	29	29.0	.001**
Having a general feeling of well-being	pre	0	0.0	50	50.0	43	43.0	7	7.0	0	0.0	84.081
	post	0	0.0	20	20.0	11	11.0	39	39.0.	30	30.0	.001**
Feeling in control	pre	0	0.0	38	38.0	45	45.0	17	17.0	0	0.0	73.087
	post	0	0.0	8	8.0	18	18.0	44	44.0	30	30.0	.001**
Bad dreams	pre	0	0.0	0	0.0	5	5.0	33	33.0	62	62.0	.000
	post	0	0.0	0	0.0	5	5.0	33	33.0	62	62.0	1.000 ns
Feeling anxious	pre	0	0.0	47	47.0	12	12.0	32	32.0	9	9.0	13.059
	post	0	0.0	56	56.0	24	24.0	13	13.0	7	7.0	.005**
Feeling angry	pre	0	0.0	35	35.0	12	12.0	32	32.0	21	21.0	74.607
	post	38	38.0	44	44.0	10	10.0	8	8.0	0	0.0	.001**
Feeling depressed	pre	74	74.0	26	26.0	0	0.0	0	0.0	0	0.0	6.368
	post	88	88.0	12	12.0	0	0.0	0	0.0	0	0.0	.009**
Feeling alone	pre	48	48.0	27	27.0	18	18.0	0	0.0	7	7.0	18.578
	post	66	66.0	30	30.0	2	2.0	0	0.0	2	2.0	.001**
Difficulty falling asleep	pre	10	10.0	43	43.0	27	27.0	20	20.0	0	0.0	26.618
	post	40	40.0	33	33.0	20	20.0	7	7.0	0	0.0	.001**
Psychological support												
Able to communicate with hospital staff (when in hospital)	pre	10	10.0	20	20.0	10	10.0	22	22.0	38	38.0	21.269 .001**
	post	0	0.0	9	9.0	5	5.0	38	38.0	48	48.0	
Able to communicate with family or friends	pre	0	0.0	10	10.0	10	10.0	50	50.0	30	30.0	22.728 .001**
	post	0	0.0	3	3.0	5	5.0	29	29.0	63	63.0	
Getting support from hospital doctors (when in hospital)	pre	0	0.0	20	20.0	10	10.0	40	40.0	30	30.0	.000 1.000 ns
	post	0	0.0	20	20.0	10	10.0	40	40.0	30	30.0	
Getting support from hospital nurses (when in hospital)	pre	11	11.0	0	0.0	50	50.0	0	0.0	39	39.0	14.593 .002**
	post	0	0.0	3	3.0	58	58.0	0	0.0	39	39.0	
Having support from family or friends	pre	10	10.0	10	10.0	0	0.0	42	42.0	38	38.0	39.125
	post	0	0.0	3	3.0	17	17.0	24	24.0	56	56.0	.001**
Able to understand instructions or advice	pre	10	10.0	10	10.0	40	40.0	0	0.0	40	40.0	43.505 .001**
	post	0	0.0	10	10.0	9	9.0	0	0.0	81	81.0	
Feeling confused	pre	0	0.0	10	10.0	38	38.0	35	35.0	17	17.0	37.055
	post	0	0.0	5	5.0	12	12.0	27	27.0	50	50.0	.001**

Chi-Square Tests *=Significant difference *p≤0.05 **= highly significance *p≤0.01 Ns= Non significant

Table (5): This table shows that comparison between pretest and post regarding emotional and psychological support: illustrated that there was a highly statistically significant difference between the pretest and posttest of the studied patients regarding emotional and Psychological support with (p. value 0.001) except for bad dreams and getting support from hospital doctors (when in hospital)) (p. value < 0.05.

Table 6: Comparison between pre and post-test regarding physical independent and pain domains of quality of recovery among studied participant n=100

Items	FOLLOW	None of the time		Some of the time		Usually		Most of the time		All of the time		X2-pvalue
Physical independence		**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	
Able to return to work, or usual home activities	Pre	0	0.0	50	50.0	20	20.0	20	20.0	10	10.0	19.114
	post	0	0.0	27	27.0	48	48.0	15	15.0	10	10.0	.001**
Able to write	Pre	33	33.0	23	23.0	0	0.0	20	20.0	24	24.0	55.983
	post	5	5.0	8	8.0	25	25.0	27	27.0	35	35.0	.001**
Have normal speech	Pre	30	30.0	10	10.0	7	7.0	17	17.0	36	36.0	48.208
	post	3	3.0	0	0.0	17	17.0	44	44.0	36	36.0	.001**
Able to wash, brush teeth or shave	Pre	18	18.0	38	38.0	17	17.0	0	0.0	27	27.0	40.525
	post	0	0.0	17	17.0	45	45.0	0	0.0	38	38.0	.001**
Able to look after own appearance	Pre	28	28.0	28	28.0	27	27.0	0	0.0	17	17.0	66.030
	post	0	0.0	4	4.0	51	51.0	0	0.0	45	45.0	.001**
Pain												
Moderate pain	Pre	0	0.0	10	10.0	48	48.0	10	10.0	32	32.0	31.453
	post	0	0.0	40	40.0	41	41.0	10	10.0	9	9.0	.001**
Severe pain	Pre	0	0.0	28	28.0	10	10.0	52	52.0	10	10.0	22.479
	post	10	10.0	33	33.0	22	22.0	30	30.0	5	5.0	.001**
Headache	Pre	40	40.0	17	17.0	12	12.0	19	19.0	12	12.0	27.278
	post	54	54.0	34	34.0	5	5.0	2	2.0	5	5.0	.001**
Muscle pains	Pre	16	16.0	39	39.0	17	17.0	20	20.0	8	8.0	12.279
	post	35	35.0	37	37.0	10	10.0	10	10.0	8	8.0	.015*
Backache	Pre	0	0.0	0	0.0	10	10.0	28	28.0	62	62.0	88.051
	post	0	0.0	47	47.0	24	24.0	16	16.0	13	13.0	.001**
Sore throat	Pre	78	78.0	22	22.0	0	0.0	0	0.0	0	0.0	4.391
	post	89	89.0	11	11.0	0	0.0	0	0.0	0	0.0	.028*
Sore mouth	Pre	57	57.0	43	43.0	0	0.0	0	0.0	0	0.0	13.464
	post	81	81.0	19	19.0	0	0.0	0	0.0	0	0.0	.001**

Chi-Square Tests *=Significant difference *p≤0.05 **= highly significance *p≤0.01 Ns= Non significant

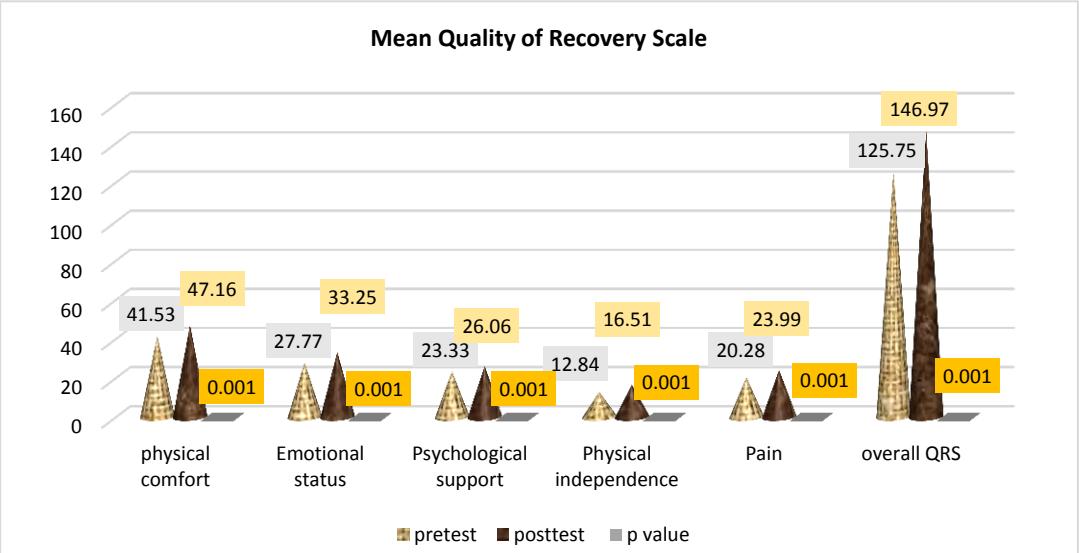
Table 6: This table shows that comparison between pretest and post regarding physical independent and pain: demonstrates that there is a highly statistically significant difference between the pretest and posttest of the studied patients regarding physical independent and pain with (p. value 0.001).

Table 7: Correlation between Quality of recovery scale among studied participant in the pretest and posttest n=100

Pearson Correlation Correlations						
		physical comfort t	Emotional status	Psychological support	Physical independence	Pain
physical comfort	Pearson Correlation	1	.431**	.196**	.424**	.628**
	Sig. (2-tailed)		.001	.005	.001	.001
Emotional status	Pearson Correlation	.431**	1	.208**	.336**	.447**
	Sig. (2-tailed)	.001		.001	.001	.001
Psychological support	Pearson Correlation	.196**	.208**	1	.287**	.295**
	Sig. (2-tailed)	.005	.003		.001	.001
Physical independence	Pearson Correlation	.424**	.336**	.287**	1	.369**
	Sig. (2-tailed)	.001	.001	.001		.001
Pain	Pearson Correlation	.628**	.447**	.295**	.369**	1
	Sig. (2-tailed)	.001	.001	.001	.001	
**. Correlation is significant at the 0.01 level (2-tailed).						

Table 7: This table shows that Correlation between Quality of recovery scale among studied participant in the pretest and posttest: there was a highly statistically significant correlation between all domains regarding Quality of recovery scale with (p. value 0.01).

Figure (2): Comparison between pre and post-test regarding mean quality of recovery scale. among patient participant n=100



Independent t-test used for this comparison Tests *=Significant difference *p≤0.05 **= highly significance *p≤0.01 Ns= Non significant

Figure (2): This figure shows mean of quality of recovery scale among patient participant between pre and post-test: that there was statistical difference in mean of all QRS domains between the pretest and posttest and a highly statistically significant difference between the pretest and posttest regarding overall quality of recovery scale. (p. value 0.001).

Discussion

Postoperative recovery is the time for physical, mental, social, and routine capacities to progress and can result in the patient going back to preoperative exercises of everyday life and an expanded level of mental wellness **(Potter, et al., 2018).** The QoR-40 gives a broader, however productive assessment of a patient's quality of recovery after anesthesia and surgery. The QoR-40 would be a valuable result degree in perioperative clinical studies and for evaluating the effect of changes in wellbeing care conveyance on quality of care **(Myles, et al., 2000)**

Regarding demographic characteristics of the studied sample, the present study showed that, two fourth of the patients their **age** ranged from 50 to 60 years old. This finding was in line with **(Abd Elwahhab, Shehata, & Abd Elghaffar, 2019)** who found the majority of both study and control groups were among age group between 30 to 50 years old. This might be due to this age represent working-age population. **Concerning sex** more than two-thirds of the patients were female compared to one third of them were males. This finding is in agreement with **(Ghaffari, et al., 2008)** reported that women are at greater risk, probably because of the development of osteoporosis but with contrast with **(Abd Elwahhab, Shehata, & Abd Elghaffar, 2019)** who found that, men are at a higher risk of low back pain than women. From the point of view of researcher gender differences may be a result of differences in lifting patterns and work methods between males and females.

Regarding residence more than most of patients come from rural area. This was matched with the paper **managed by Ismail and Mohamed (2014)** who study the effect of rehabilitation intervention after laminectomy surgery revealed that the majority of patients were arising from urban regions. This may be due to this study was conducted Mansoura university hospital which surrounded by many urban areas. **Concerning marital status** most of the patient were married. This result was **supported** by **Kanaan, et al. (2014)** who reported that, more than two thirds of the patients were married. Also **Nerland, et al., (2015)** recognized that about three quarters of their patients were married.

Regarding to the educational level the current study findings showed that half of sample receive secondary education. This result was in contrast with **Mirzashahi, et al. (2018)** who reported that half of their patients had elementary education. This may be due to most of patients come from rural area that believe that not necessary to graduated from high educational lvel. **Regarding to the Occupation**, the current study findings showed that more than half of participant not working but two third of patients had enough income. This result is in contrast with **Sadiya, et al., (2018)** who mentioned that, most of patients were farmers. This may be due to two fourth of the patients their **age** ranged from 50 to 60 years old and are unable to work in addition to presence of chronic illness.

As regards to **previous hospitalization** two third of patients had positive history of hospitalization and more than most of them had **chronic diseases**. This finding is in contrast with **Abd Elwahhab, Shehata, & Abd Elghaffar, (2019)** who found that the majority of study subjects had no history of chronic diseases and didn't hospitalized before while this result was matching with **Nerland, et al., (2015)** who showed that about half of study and control groups had chronic disease and more than half of them had diabetes mellitus. From the view of researcher more than have of sample had positive history of hospitalization may be due to the patient's age in study sample and more than about majority of them had chronic diseases

As regards to previous surgery, nearly half of patients have previous surgery and only one quarter have previous back surgery, this may be due to the operation of lumber discotomy may be relapse due to knowledge deficit of the patient regarding information about lifestyle modification and performing activity of daily living. As regards to smoking one quarter of the patients were smoker. this finding was in the same line with **Abd-El Mohsen, Ammar, & Mohammed (2019)** who found that participant in the study had positive history of **previous surgery,** previous back surgery and smoking.

Nurses individualize patient care and education to each patient's unique spinal pathology, comorbidities, surgical risk factors, psychosocial context, and environment. Nurses functioning in collaboration with patients and the inter-professional team, nurse's emphasis on optimizing patients' physical and mental health and mobilizing their social support. **So, the core purpose** of the present study was to evaluate the effectiveness of preoperative patient education on quality of recovery for patient undergoing lumber discectomy **(Smeltzer**, **et al., 2012).**

Comprehensive recovery in entirely PQR domains was extensively less recurrent in patient's post-neurological surgeries. this can be explained by recovery from anesthesia and surgery is occasionally complex by residual sedation, pain, nausea, vomiting, and various other major and minor complaints, which be able to impact the incidence of PQR. Regarding to **quality of recovery domains** for patient enduring lumber discectomy, the results demonstrated a highly statistically significant differences were viewed in all items of **physical domain** except vomiting. This finding is supported by **Shulman, et al.,, (2015)** who mentioned that recovery from anesthesia and surgery is sometimes complicated by residual sedation among them vomiting. regarding **emotional and psychological support** there were statistically significant difference between the pretest and posttest of the studied patients except bad dreams and getting support from hospital doctors, this may be due to readiness of the patient to acquire needed information and instruction required to decrease patient's suffering. This finding is supported with **Leslie, et al., 2003& Gornall, et al., 2013** who mentioned that inadequate treatment of postoperative pain may result in adverse physical and psychologic outcomes and decreased patient satisfaction

Concerning **physical independent and pain** there were highly statistically significant difference between the pretest and posttest of the studied patients. This finding is supported with **Shahnaz, et al, (2016),** who conducted a study entitled "Effects of Patient Education Program on the Quality of Nursing Care and Inpatient Satisfaction in Surgical Wards of Selected Hospitals in Isfahan, Iran" reported that a significant difference was found between pre-test and post-test scores for the quality of nursing care. There was a statistically significant difference between the control and exploratory groups within the balanced mean scores of the quality of nursing care at post-test. So from the view of research patient education increased the quality of nursing care for patients hospitalized in the surgical department in the post-test phase. The effect estimates of this education improving the quality of nursing care within the post-test.

Regarding to overall Quality of recovery scale, there was a highly statistically significant difference between the pretest and posttest regarding quality of recovery scale. This result mirrors the efficiency of preoperative patient education on improving quality of recovery for patient undergoing lumber discectomy. This finding is supported with **Papanastassiou, et al., (2011)** who reported the importance of preoperative patient education in enhanced optimum pain management, additional valuable features include lessening of anxiety by familiarizing the indefinite, fulfilment in accomplishment of performances, discharge preparation, realistic expectations, and overall satisfaction. Moreover, this result in harmony with **Rabii (2019)** who declared that, there is proof that preoperative education aids in shrink pain and anxiety, and advance preparedness in numerous surgical residents, lengthways with some emerging evidence to advocate comparable effects in spinal surgery

Poland, et al., (2017) informed that enriched recovery across the components of an ideal patient education process could consequently be seen as supportive patients and staff to cooperate to assist timely recovery and optimal consequences in conference recognized patient requirements and in using relevant sources.

Conclusion

The results of the existing study concluded that; preoperative patient education was efficient on improving quality of recovery for patient undergoing lumber discectomy

Recommendation

The following recommendations are suggested Based on the results of the study: providing copies of the preoperative patient

education guide in the orthopedic department and clinic to be readily available for all patients planned to undergo lumbar discectomy, the present study be replicated on larger study populations for generalization of the results.

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