Self Care Activities for Patients' Post Lumbar Decompression Surgery

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Abstract

Background: Lumbar decompression surgery is a type of spinal surgery performed to relieve pressure on the spinal cord or nerves in the lower back (lumbar region). This procedure is typically used to treat conditions like lumbar stenosis, herniated discs, degenerative disc disease, spondylolisthesis, or other conditions that cause narrowing of the spinal canal and impinge upon nerves. **Aim:** This study aimed to assess self-care activities for patients' post lumbar decompression surgery. **Research design:** Descriptive exploratory design was utilized to conduct this study. **Setting:** The study was conducted at neurological unit affiliated to Ain Shams University Hospitals. **Study subjects:** A purposive sample of 60 patients post lumbar decompression surgery was recruited in this study. **Tools: data were collected through three tools,** 1) patient interviewing questionnaire. 2) Barthel Index Activities of Daily Living scale.3) Self-Care Assessment **Results:** 63.3% of the studied patients had independent level of daily living activities. 96.7% of the studied patients had poor level of total self-care aspects. **Conclusion:** Less than two thirds of the studied patients had independent level of daily living activities. And most of the studied patients had poor level of total self-care aspects **Recommendations:** Periodical follow up for patients with lumbar decompression surgery to enhance self care and daily activity.

Keywords: Self Care Activities, Patients' lumbar decompression surgery.

Introduction:

Lumbar decompression surgery is a widely performed procedure to alleviate symptoms associated with conditions such as herniated discs, spinal stenosis, and sciatica. While the surgery aims to relieve pain and improve functionality, the recovery process is a critical phase requiring active participation from patients to optimize outcomes. If lumbar decompression surgery is recommended, usually have at least one of the following procedures: Laminectomy or Laminotomy. Discectomy, Disc replacement, Spinal fusion. In many cases, a combination of these techniques may be used **(Lenga et al., 2024).**

Lumbar discectomy is a surgical procedure to remove part or all of a herniated disc in the lower back, relieving pressure on nearby nerves to alleviate symptoms such as sciatica, numbness, or weakness. It is typically recommended for patients whose symptoms persist despite conservative treatments or for those with severe nerve compression or conditions like cauda equina syndrome. Performed under general anesthesia, the procedure involves making a small incision, removing part of the vertebra if needed (laminotomy), and excising the damaged disc **(Blamoutier et al., 2023).**

Lumbar laminectomy, also called open decompression, is a surgical procedure performed to treat the symptoms of central canal stenosis (narrowing of the spinal canal). The surgery involves the removal of all or part of the lamina (posterior part of the vertebra) to provide more space for the compressed spinal cord and/or nerve roots. Lumbar laminectomy treats sciatica symptoms as well as more serious medical conditions, such as cauda equina syndrome. Laminectomy performed to relieve pressure from the spinal cord or nerve roots emerging from the spinal canal; whereas discectomy is performed to decompress the nerve root **(Yankang et al., 2021).**

Self-care activities play a vital role in recovery after lumbar decompression surgery, promoting healing, reducing complications, and enhancing long-term outcomes. Key activities include adhering to movement restrictions, engaging in light walking, and practicing proper body mechanics to protect the spine. Patients are encouraged to participate in physical therapy and gradually introduce low-impact exercises to

restore mobility and strengthen core muscles. Effective pain and wound management, including proper medication use, cold or heat therapy, and incision care, is essential **(Elkodosy, 2024).**

Also maintaining a balanced diet, staying hydrated, and avoiding smoking supports tissue repair, while managing stress and seeking emotional support can aid mental well-being. Clear communication with healthcare providers and adherence to follow-up appointments ensure patients stay informed about their recovery progress and address any concerns promptly. Together, these activities empower patients to actively contribute to their recovery journey **(Zain et al., 2024).**

Significance of the study

The incidence of lumbar decompression surgery varies globally, influenced by factors such as aging populations, healthcare accessibility, and diagnostic advancements. Recent studies have examined the incidence and trends of lumbar decompression surgeries. A 2023 study analyzing data from South Korea between 2010 and 2019 reported a significant increase in surgical interventions for lumbar spinal stenosis, with decompression procedures rising by 1.6 times and fusion surgeries increasing approximately fourfold during the study period **(Ji et al., 2023).**

However, in Egypt there is no national statistics available about lumbar decompression surgery, meanwhile the medical records of neurosurgical ward at El Demerdash Hospital revealed that the number of patients who had underwent lumbar decompression surgery year (2022) were approximately 120 patients from 2400 patients admitted to neurosurgical department, it represented 5% from total cases who want lumbar decompression surgery. (Statistical Record of El-Demerdash surgical hospital. Ain Shams University, 2023).

Self-care activities for patients' with lumbar decompression surgery has benefits to prevent recurrence, post-operative complication and improving the quality of life.

SO, the main objective of this study is to assess self-care activities for patient post lumbar decompression surgery.

Aim Of The Study

This study aimed to:

Assess level of self care activities for patients' post lumbar decompression surgery.

Research questions:

The study was conducted to answer the following question:

- What is the level of self care activities for patients' post lumbar decompression surgery?

Subjects and Methods:

I- Technical Design:

The technical design includes research design, setting, subjects and tools for data collection.

Research design*:* The descriptive exploratory design utilized to conduct the current study was defined by exploratory research as a way of learning about the topic. Exploratory research can help fill a gap in knowledge about a new or under-researched topic or approach the topic from a different perspective to generate new and emerging insights. Also, it can be used to describe individuals, groups, activities, events, or situations, descriptive research and to describe the community response to any event **(Dubey & Kothari, 2022).**

Setting: The study was conducted in neurosurgical ward at El-Demerdash hospital which contains 9 rooms about 25 beds in the second floor, 8 rooms about 21 beds in the third floor at Ain Shams University Hospital which affiliated to Ain Shams University.

Subjects: A purposive sample of 60 patients post lumbar decompression surgery were selected according to certain inclusion criteria. The sample size was determined statistically by power analysis considering the total number of patients post lumbar decompression surgery in El Demerdash hospital during the year (2022) (Medical records of El-Demerdash Surgical Hospital, neurosurgical Departments, 2023).

Sample size: The sample size was calculated according to the study design, objectives of the study and review of past literature and at power 80% and confidence level 95% and degree of error = 0.05 by the following equation:

n =(N ×p (1-p))/({[N -1×(d ^2÷z ^2)]+p (1-p)})

N Population size = 120

Z value for 90% confidence limits = 1.645

D margin errors = 0.05

P proportion Population = 0.5

$$= \frac{\times 0.5(1-0.5)\ 120}{\{[120-1\times(0.0025+2.7060)]+0.5(1-0.5)\}} = 60 \text{ patients}$$

(Thompson, 2012)

Inclusion criteria:

Patients was selected according to the following criteria: Adult patients' from both sexes, patient who is conscious and able to communicate verbally, patients' with lumbar discectomy and willing to participate in this study and patients' with lumbar laminectomy and willing to participate in this study.

Exclusions Criteria:

Comorbidity medical condition such as diabetes mellitus, renal failure, heart failure ..etc., disoriented & comatose patients', patient with other pathologies (e.g. tumor) and history of uncontrolled psychological disorder.

Tools for data collection: The data were collected using the following tools:

Tool I: Patient structured interview questionnaire:

This tool was developed by Investigator based on literature review **(Ibrahiem et al., 2021; Amarilla-Donoso et al., 2020 and Matharu et al., 2019)** and it contains two parts:

Part 1: Socio- demographic characteristics:

It was used to assess socio- demographic characteristics of patients under study, It composed of (12) MCQ questions; it included (age, gender, marital status, educational level, residence, living status, work, income, housing space, floors and life style that included regular sports and smoking).

Part 2: Patient medical history:

It was used to assess medical history for patients under study, it contains of three sub groups.

A) Anthropometric measurements: It included three questions regarding weight, height and body mass index (kg/M^2).

B) Patients' present history (post-surgery): It was used to assess patient's present history (post- surgery) it included five questions regarding (reason for the surgery, time of surgery, chief complain post-surgery, factors that elevate pain and factors that decrease pain in the affected).

C) Patients' past history: it was used to assess patient's past medical history, it included five questions regarding (suffering from any chronic diseases, past significant injuries, previous surgeries, family history, and long term medications).

Tool II: Barthel Index Activities of Daily Living scale:

This tool adapted from ***Jain (2017)*** to assess the patient's ability to perform activities of daily living independently. This scale was composed of ten categories (bowels, bladder, grooming, toileting, feeding, transferring, mobility, dressing, climbing stairs, and bathing). Each category has Likert scale.

Scoring system:

The scores responses for every item were as follows: Completely dependent was scored zero, need assistant was scored 5, and Independent was scored 10. The total scores for

independency level ranged from 0-100, the higher scores reflect the higher independence level. It was categorized as the following:

- 0-30 considered "completely dependent".
- 35-65 considered "need assistance ".
- 70-100 considered "independent".

Tool III. Self Care Assessment:

This tool was adapted from **Saakvitne & Pearlman (1996).** It was used to assess patients' level of self care including all aspect of physical, psychological, emotional, spiritual, and workplace condition or professional self care.

Scoring system:

Patient's self-care will be scored on 3 point Likert scale as (never =zero, sometimes=1 & always=2). These scores will be summed and converted into a percent score and classified into 3 categories according to the following:

- Poor level of self-care if scores <50%
- Average level of self-care if scores 50% to < 75%
- Good level of self-care if scores ≥ 75

Validity and reliability:

The validity of the proposed tools was achieved to assess face and content validity. This stage was achieved through a jury of 5 experts, three of them professors, one assist professor, and one lecturer from the Medical-Surgical Nursing department at the Faculty of Nursing, at Ain Shams University. The experts reviewed the tools for clarity, relevance, comprehensiveness, and simplicity; minor modifications were done.

Face validity: refers to the extent to which a test appears to measure what it claims to measure based on face value **(Soubra et al., 2019).**

Content validity: is the degree to which a test or assessment instrument evaluates all aspects of the topic, construct, or behavior that it is designed to measure **(Schaufeli et al., 2020).**

Reliability: The tools were measured to ensure that an assessment tool produces stable with consistent result overtimes. The reliability coefficient for the study tools were calculated using the Cronbach's alpha test which is a model of internal consistency was used in the analysis of Patients' knowledge questionnaire, barthel index activities of daily Living scale, self-Care assessment tool (0.70, 0.918 and 0.867 respectively).

Ethical considerations:

The ethical research consideration in this study included the following:

- Approval of the protocol was obtained from the ethical Committee in the Faculty of Nursing at Ain Shams University before starting the study ,and **Ethical code :25.04.673** .
- The investigator clarified the objective and aim of the study to the patients included in the study.
- The investigator assured maintained anonymity and confidentiality of the subjects' data.
- Patients were informed that were allowed to choose to participate or not in the study and that patients have the right to withdraw from the study at any time without giving any reasons.
- Values, culture, and beliefs were respected.

Pilot study:

A pilot study was conducted on 5 patients (10% of total study subjects) of the patients under study to test the feasibility and applicability of the tools. The patients who were included in the pilot study were added to the sample because no modification was done after conducting the pilot study.

Field Work:

Data collection was done at neuro surgery departments (2 & 3) in El-Demerdash Hospital at Ain Shams University Hospital. Data collection phase was started and finished through 6 months from the beginning of February 2024 to the end of July 2024. Firstly the investigator introduced herself and explained the purpose of the study for the subjects included in the study to obtain their participation consent (oral & written consent).

The investigator visited the selected setting one day per week, Monday from 9.00 am to 1.00 pm in neuro surgery department. The investigator met about two to three patients every visit.

Data collected from studied subjects after ensuring that they met the criteria for selection. The study tool was filled in and completed by the investigator. First tool took 10-15min, second tool took 3-6 min and third tool took10-15 min. the time needed to fill and complete all tool took about 30-40 minutes to be filled and completed. Finally data entered and statistical analysis and calculated was conducted.

2- Administrative design:

An official letter was issued from the Faculty of Nursing, Ain Shams University to the director of inpatient neurosurgery department at which the study was conducted, explaining the purpose of the study to obtain their permission to conduct this study. Then informed consent to participate in the current study was taken after the purpose of the study was clearly explained to each patient.

3- Statistical design:

The collected data were organized, analyzed using appropriate statistical significant tests. All data were tabulated and subjected to statistical analysis. Statistical analysis is performed by Statistical Package for Social Science (SPSS) in general (version 25), also Microsoft office Excel is used for data handling and graphical presentation. The data was presented as number and percent. Relations between different variables were tested using Chi-square test (X^2).

Probability (P-Value) was considered significant as the following:

- Insignificant $p > 0.05$
- Significant $p < 0.05$
- Highly significant $p < 0.01$

Results:

Table (1): Shows that, 38.3% of the studied patients their age were from 30 to 40 years, the Mean ± SD of age 39.83±9.48 years. As regard to gender, 61.7% of them were male. In addition, 95% of the studied patients were married and 38.3% of the studied patients had read and write. Also 51.7% of the studied patients were from the urban. 95% of them living with family. And 71.7% of them were working, 76.7% of them work that requires muscular effort. 61.7% of the studied patients' monthly income was enough for the cost of treatment.

Table (2): Demonstrates that, 46.6% of the studied patients their weight were from 80 to 100 kg, 36.7% of them their height were from 170 to 180 cm and 40% of them were moderate obesity.

Table (3): Presents that, 35% of the studied patients' the reason for the surgery was spinal injuries as fracture. 36.7% of them had performed the surgery since less than a week ago, 70% of them were suffering from a complication after the surgery and 64.3% of them were suffering from numbness of the limb as a complication after the surgery. 51.7% of the studied patient’s factor that elevate pain in the affected part was standing for long periods. 53.3% of them the most common factor that decrease pain in the affected part was comfort.

Table (4): Displays that, 11.7% of the studied patients had chronic diseases and 28.6% of them had rheumatoid arthritis, hypertension and diabetes mellitus respectively. 70% of them had pervious significant injuries and 66.6% of them had fractures. 93.3% of them hadn't orthopedic surgery previously and 50% of them had external fixation surgery.

Figure (1): Shows that, 63.3% of the studied patients had independent level of daily living activities. And 36.7% of the studied patients had need assistance level of daily living activities post lumbar decompression surgery.

Table (5): Presents that, 61.7% of the studied patients never played exercise. 66.7%, 73.3% of them sometimes wear clothes that feel good and get enough sleep, respectively. 75% of the studied patients always take care of personal hygiene.

Table (6): Clarifies that, 65% of the studied patients never go on vacations or day-trips. 71.7%, 63.3% of them sometimes take time off from work, school, and other obligations and learn new things, unrelated to work.

Table (7): Reveals that, 53.3% of the studied patients never meet new people. 65%, 58.3% of them sometimes have stimulating conversations and ask others for help, when needed.

Table (8): Shows that, 78.3% of the studied patients never appreciate art that is impactful (e.g. literature). 65% of them sometimes spend time in nature and set aside time for thought and reflection.

Table (9): Displays that, 58.3%, 68.4% of the studied patients sometimes make time to talk and build relationships with colleagues and take breaks during work.

Table (10): Clarifies that, there was a highly statistically significant relationship between the age of the studied patients with their total level of daily living activities at P-value 0.005. And there was a statistically significant relationship between marital status, educational level of the studied patients with their total level of daily living activities at P-value 0.020, 0.012 respectively.

Table (11): Reveals that, there was a highly statistically significant relationship between live with family of the studied patients with their total level of self-care at P-value 0.003. And there was a statistically significant relationship between educational level of the studied patients with their total level of self-care at P-value 0.027.

Table (1): Number and percentage distribution of sociodemographic data of patients post lumbar decompression surgery (No. = 60)

Items	No.	%
Age		
20≤30 years	9	15
30 ≤40 years	**23**	**38.3**
40 ≤50 years	18	30
≥50 years	10	16.7
Mean±SD	39.83±9.48	
Gender		
Male	**37**	**61.7**
Female	23	38.3
Marital status		
Married	**57**	**95**
Unmarried	3	5
Educational level		
Illiterate	9	15.1
read and write	**23**	**38.3**
Moderate education	17	28.3
Academic education	11	18.3
Residence		
Urban	**31**	**51.7**
Rural	29	48.3
Live with		
live alone	3	5
Living with Family	**57**	**95**
Work		
Working	**43**	**71.7**
Not working	17	28.3
Type of work(No.=43)		
Mental effort	10	23.3
Muscular effort	**33**	**76.7**
Monthly income of the family sufficient to cover the costs of treatment		
Enough	**37**	**61.7**
Not enough	23	38.3

Table (2): Number and percentage distribution of the studied patients according to their clinical data (No. =60)

Items	No.	%
Anthropometric measurements		
Weight (Kg)		
40 ≤60 kg	7	11.7
60 ≤ 80 kg	25	41.7
80≤100 kg	**28**	**46.6**
Height (CM)		
150 ≤160 cm	17	28.3
160 ≤ 170 cm	21	35
170 ≤180 cm	**22**	**36.7**
Body mass index (kg/M2)		
No obesity >18.5	6	10
Mild obesity (18.5 -24.9)	23	38.3
Moderate obesity (25 -29.9)	**24**	**40**
Severe obesity (≥30)	7	11.7

Table (3): Number and percentage distribution of the studied patients according to their present history (No. =60).

Items	No.	%
Reason for the surgery		
Spinal stenosis	17	28.3
Slipped disc and sciatica	13	21.7
Spinal injuries as fracture	**21**	**35**
Metastatic spinal cord compression	9	15
Time of surgery		
≤ 1 week	**22**	**36.7**
1 ≤ 2 weeks	12	20
2 ≤ 4 weeks	9	15
≥ month	17	28.3
Suffering from a complication after the surgery		
Yes	**42**	**70**
No	18	30
The complication(No.=42) *		
Pain in the leg	14	33.3
Numbness of the limb	**27**	**64.3**
Lower limb swelling	6	14.3
Wound infection	6	14.3
Factors that elevate pain in the affected part *		
Walking	13	21.7
Standing for long periods.	**31**	**51.7**
Sitting for long periods.	30	50
Descending or ascending stairs	15	25
Heavy objects	24	40
Factors that decrease pain in the affected part *		
Comfort	**32**	**53.3**
Action compresses (cold / warm)	13	21.7
Dealing with pain medications	31	51.7
Doing massage on the affected part	31	21.7

Numbers are not mutually exclusive.

Table (4): Number and percentage distribution of the studied patients according to their past history (No. =60).

Items	No.	%
Suffering from any chronic disease		
Yes	**7**	**11.7**
No	53	88.3
Chronic diseases(No.=7)		
Osteoporosis	1	14.2
Rheumatoid arthritis	**2**	**28.6**
Hypertension	**2**	**28.6**
Diabetes mellitus	**2**	**28.6**
Pervious significant injuries		
Yes	18	30
No	**42**	**70**
Injuries affecting movement(No.=18)		
Fractures	**12**	**66.6**
Injuries	3	16.7
Contusions	3	16.7
Orthopedic surgery previously		
Yes	4	6.7
No	**56**	**93.3**
Pervious surgery(No.=4)		
Internal fixation	1	25
External fixation	**2**	**50**
joint replacement	1	25

Numbers are not mutually exclusive

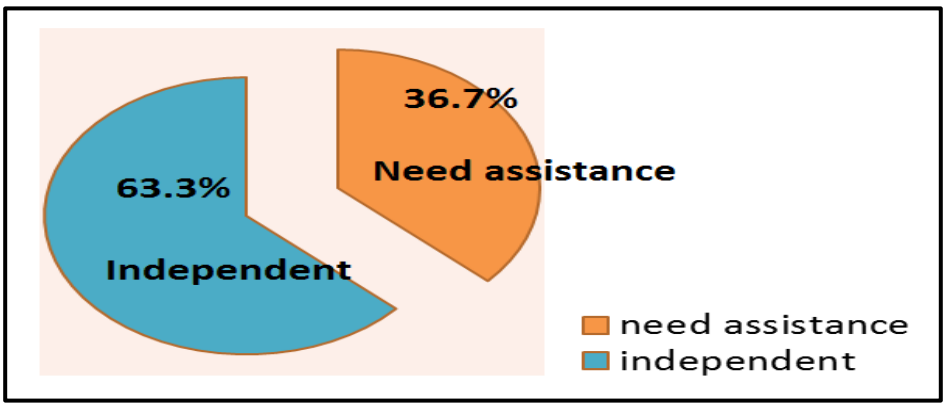

Figure (1): Percentage distribution of the studied patients according to their total level of daily living activities post lumbar decompression surgery (n=60).

Table (5): Number and percentage distribution of the studied patients according to their physical aspect of self-care post lumbar decompression surgery (n. =60).

Items	Never		Sometimes		Always	
	n.	%	n.	%	n.	%
Eat healthy foods	0	0	23	38.3	37	61.7
Take care of personal hygiene	0	0	15	25	45	75
Exercise	37	61.7	22	36.7	1	1.7
Wear clothes that feel good	7	11.7	40	66.7	13	21.7
Eat regularly	8	13.3	35	58.3	17	28.3
Participate in fun activities (e.g. walking, swimming, dancing, sports)	29	48.3	30	50	1	1.7
Get enough sleep	6	10	44	73.3	10	16.7
Go to preventative medical appointments (e.g. checkups, teeth cleanings)	21	35	37	61.7	2	3.3
Rest when sick	4	6.7	33	55	23	38.3

Table (6): Number and percentage distribution of the studied patients according to their psychological – emotional aspect of self-care post lumbar decompression surgery (n. = 60).

Items	Never		Sometimes		Always	
	n.	%	n.	%	n.	%
Take time off from work, and other obligations	11	18.3	43	71.7	6	10
Participate in hobbies	28	46.7	32	53.3	0	0
Get away from distractions (e.g.phone, email)	24	40	24	40	12	20
Learn new things, unrelated to work	19	31.7	38	63.3	3	5
Express feelings in a healthy way (e.g. talking, creating art, journaling)	24	40	30	50	6	10
Recognize own strengths and achievements	12	20	30	50	18	30
Go on vacations or day-trips	39	65	20	33.3	1	1.7
Do something comforting (e.g. re-watch a favorite movie, take a long bath)	23	38.3	34	56.7	3	5
Find reasons to laugh	8	13.3	35	58.3	17	28.3
Talk about my problems	7	11.7	43	71.7	10	16.7

Table (7): Number and percentage distribution of the studied patients according to their social aspect of self-care post lumbar decompression surgery (n. = 60),

Items	Never		Sometimes		Always	
	n.	%	n.	%	n.	%
Spend time with people who like	10	16.7	19	31.7	31	51.6
Call or write to friends and family who are far away	14	23.3	28	46.7	18	30
Have stimulating conversations	17	28.3	39	65	4	6.7
Meet new people	32	53.3	24	40	4	6.7
Spend time alone with romantic partner	27	45	18	30	15	25
Ask others for help, when needed	1	1.7	35	58.3	24	40
Do enjoyable activities with other people	20	33.3	20	33.3	20	33.3
Keep in touch with old friends	4	6.6	28	46.7	28	46.7

Table (8): Number and percentage distribution of the studied patients according to their spiritual aspect of self-care post lumbar decompression surgery (n. = 60)

Items	Never		Sometimes		Always	
	n.	%	n.	%	n.	%
Spend time in nature	2	3.3	39	65	19	31.7
Meditate	10	16.7	32	53.3	18	30
Pray	0	0	5	8.3	55	91.7
Recognize the things that give meaning to life	0	0	34	56.7	26	43.3
Act in accordance with morals and values	0	0	9	15.0	51	85
Set aside time for thought and reflection	5	8.3	39	65	16	26.7
Participate in a cause that is important to me	11	18.3	32	53.4	17	28.3
Appreciate art that is impactful (e.g. literature)	47	78.3	12	20	1	1.7

Table (9): Number and percentage distribution of the studied patients according to professional aspect of self-care post lumbar decompression surgery (n. = 60).

Items	Never		Sometimes		Always	
	n.	%	n.	%	n.	%
Improve professional skills	19	31.7	28	46.6	13	21.7
Say "no" to excessive new responsibilities	16	26.7	16	26.7	28	46.6
Take on projects that are interesting or rewarding	24	40	33	55	3	5
Learn new things related to profession	17	28.3	31	51.7	12	20
Make time to talk and build relationships with colleagues	17	28.4	35	58.3	8	13.3
Take breaks during work	5	8.3	41	68.4	14	23.3
Maintain balance between my professional and personal life	7	11.7	34	56.6	19	31.7
Keep a comfortable workspace that allows to be successful	3	5	34	56.7	23	38.3
Advocate for fair pay, benefits, and other needs	2	3.3	34	56.7	24	40

Table (10): Relation between the patients' socio-demographic data and their total level of daily living activities (No. =60)

Items	Total level of daily living activities				Chi-square Test	
	Need assistance (No. =22)		Independent (No. =38)		X^2	P-Value
	No.	%	No.	%		
Age						
20≤30 years	5	22.7	4	10.5		
30 ≤40 years	2	9.1	21	55.3	12.854	0.005**
40 ≤05 years	9	40.9	9	23.7		
≥50 years	6	27.3	4	10.5		
Gender						
Male	13	59.1	24	63.2	0.097	0.755
Female	9	40.9	14	36.8		
Marital status						
Married	19	86.4	38	100	5.455	0.020*
Unmarried	3	13.6	0	0		
Educational level						
Illiterate	6	27.3	3	7.9		
read and write	4	18.2	19	50	10.999	0.012*
Moderate education	5	22.7	12	31.6		
Academic education	7	31.8	4	10.5		
Residence						
Urban	11	50	20	52.6	0.039	0.844
Rural	11	50	18	47.4		
Live with						
live alone	2	9.1	1	2.6	1.224	0.269
Living with Family	20	90.9	37	97.4		
Work						
Working	16	72.7	27	71.1	0.019	0.890
Not working	6	27.3	11	28.9		
Type of work (No.=43)						
Mental effort	5	50	5	13.2	0.937	0.626
Muscular effort	11	22.7	22	57.9		
Monthly income of the family sufficient to cover the costs of treatment					2.000	0.157
Enough	11	50	26	68.4		
Not enough	11	50	12	31.6		
House space suitable for movement after surgery					0.055	0.815
Yes	15	68.2	27	71.1		
No	7	31.8	11	28.9		
Live in the upper floors						
Yes	11	50	13	34.2	1.447	0.229
No	11	50	25	65.8		
Use to climb(No.=24)						
Elevator	5	22.7	8	21.1	1.665	0.435
Stairs	6	27.3	5	13.2		
Regular sports before surgery						
Yes	0	0	2	5.3	1.198	0.274
No	22	100	36	94.7		
Smoking cigarettes						
Yes	4	18.2	4	10.5	0.707	0.401
No	18	81.8	34	89.5		

P-Value > 0.05: No significant (); P-Value < 0.05: significant (*); P-Value < 0.01: highly significant (**)

Table (11): Relation between the patients' socio-demographic data and their total level of self-care aspects (No. =60).

Items	Total level of self-care				Chi-square Test	
	Poor self-care (No. =58)		Average self-care (No. =2)		X^2	P-Value
	No.	%	No.	%		
Age						
20≤30 years	9	15.5	0	0		
30 ≤40 years	21	36.2	2	100		
40 ≤05 years	18	31	0	0		
≥50 years	10	17.2	0	0	3.328	0.344
Gender						
Male	36	62.1	1	50		
Female	22	37.9	1	50	0.119	0.730
Marital status						
Married	55	94.8	2	100		
Unmarried	3	5.2	0	0	0.109	0.741
Educational level						
Illiterate	9	15.5	0	0		
read and write	23	39.7	0	0		
Moderate education Academic	17	29.3	0	0		
education	9	15.5	2	100	9.216	0.027*
Residence						
Urban	29	50	2	100		
Rural	29	50	0	0	1.935	0.164
Live with						
live alone	2	3.4	1	50		
Living with Family	56	96.6	1	50	8.820	0.003**
Work						
Working	41	70.7	2	100		
Not working	17	29.3	0	0	0.818	0.366
Type of work(No.=43)						
Mental effort	10	17.2	0	0		
Muscular effort	31	53.4	2	100	1.693	0.429
Monthly income of the family sufficient to cover the costs of treatment						
Enough	35	60.3	2	100		
Not enough	23	39.7	0	0	1.286	0.257
House space suitable for movement after surgery						
Yes	40	69	2	100		
No	18	31	0	0	0.887	0.346
Live in the upper floors						
Yes	22	37.9	2	100		
No	36	62.1	0	0	3.103	0.078
Use to climb(No.=24)						
Elevator	12	20.7	1	50		
Stairs	10	17.2	1	50	3.140	0.208
Regular sports before surgery						
Yes	2	3.4	0	0		
No	56	96.6	2	100	0.071	0.789
Smoking cigarettes						
Yes	8	13.8	0	0		
No	50	86.2	2	100	0.318	0.573

P-Value > 0.05: No significant (); P-Value < 0.05: significant (*); P-Value < 0.01: highly significant (**)

Discussion:

Lumbar decompression surgery is a common intervention for patients with spinal stenosis or herniated discs, aimed at relieving pressure on the spinal nerves and improving function. Postoperative knowledge and self-care activities are critical for optimal recovery and preventing complications. Patients must be educated about wound care, activity modification, pain management, and the importance of follow-up care to ensure a successful outcome. One of the key components of postoperative care is patient education on activity levels **(Ghogawala et al., 2019)**.

Initially, patients are advised to avoid bending, lifting heavy objects, and twisting movements to protect the surgical site. Adherence to activity modifications and a gradual return to normal activities are associated with improved long-term outcomes and reduced risk of re-injury. Patients should also be instructed on proper posture and ergonomics to minimize strain on the lumbar spine **(Smuck et al., 2020).**

Pain management is another cornerstone of recovery. Patients are commonly prescribed analgesics, including nonsteroidal anti-inflammatory drugs (NSAIDs) and sometimes short courses of opioids, alongside muscle relaxants for muscle spasms. The patients should be educated on the appropriate use of these medications to prevent dependency or misuse. Non-pharmacological interventions, such as heat therapy, ice packs, and gentle stretches as advised by physical therapists, may complement pharmacological treatments **(Gornet & Schranck, 2021).**

Engaging in physical therapy is another vital aspect of self-care. Guided exercises enhance mobility, strengthen the back and core muscles, and promote healing. Patients who participate in structured rehabilitation programs recover faster and achieve better functional outcomes than those who do not **(Ghogawala et al., 2019).**

The discussion of the study findings covered six main parts; Part I: Socio demographic characteristics of the studied patients. Part II: History of the studied patients regarding lumbar decompression surgery Part III: Patients' Level of daily living activities post lumbar decompression surgery. Part IV: Patients' Level of self-care aspect post lumbar decompression surgery. Part V: Relation and Correlation between the studied variable.

Part I: Regarding the socio-demographic characteristics of the studied patients:

The present study mentioned that more than one third of the studied patients were between the ages of 30-40 years with a mean and SD 39.83±9.48. From the investigator point of view, there are variations in many research papers about age. This may reflect regional, cultural, or environmental differences. So every region have a different nature of working environment, and this is the main reason for the difference of age. This result is agreed with **Parker et al., (2022)** who conducted a study about "Rends in demographics and outcomes of lumbar decompression surgery for herniated nucleus pulposus." reported that a mean age of 40.8 years among patients undergoing lumbar decompression for herniated nucleus pulposus. On the other hand, this result is disagreed with **Amundsen et al., (2021)** who conducted a study about "Lumbar decompression surgery in geriatric populations: Outcomes and considerations." the study revealed that patients aged 60 and above, emphasizing that lumbar decompression surgeries are more common in geriatric populations due to degenerative changes associated with aging.

Concerning patient's gender, the current study showed that about two thirds were male. From the investigator point of view, many cases going under lumbar decompression surgery due to hard physical working which present in male working more than female working. This result is agreed with **Sastry et al., (2023)** who conducted a study about "Patterns in decompression and fusion procedures for patients with lumbar stenosis after major clinical trial results." reported that more than two thirds of the participants being male. This result is disagreed with **Chua et al., (2022)** who conducted a study about "Post-surgical outcomes of lumbar decompression:

Examining demographics and recovery." and revealed that only one third of the patients with lumbar spinal stenosis were male.

Considering patient's marital status, the current study revealed that the majority of the whole sample were married. marital status significantly impacts postoperative self-care. From the investigator point of view**,** married patients often working harder than singles due to their families. Also married patients receive more support in adhering to wound care, activity restrictions, and pain management which would help speedy recovery. This result is agreed with **Jansson et al., (2023)** who conducted a study and revealed that more than two thirds of the studied patients were married. This result is contradicted with **Kim et al., (2020)** who conducted a study about "Urban demographic patterns in lumbar surgery outcomes." And studied patients undergoing lumbar decompression in an urban hospital setting, reporting that only one third of the participants were married.

With respect to the educational level of the studied patients, the present study indicated that more than one third of the studied patients had read and wrote. From the investigator point of view, educational level is important to determine the way of explaining and affecting adherence to care plans. This result is agreed with **Alotaibi et al., (2022)** who conducted a study about "Educational impact on post-operative recovery in spine surgery patients." This study focused on post-operative spinal surgery patients in a rural region, finding that approximately more than one third of the patients were literate with only basic reading and writing skills.

Considering patient's living area, the present study indicated that about half of the studied patients lived in urban areas. From the investigator point of view**,** urban patients may have better access to healthcare services, educational resources, and postoperative support, which can enhance their knowledge and self-care practices. However, urban lifestyles may also pose challenges, such as limited physical activity due to sedentary routines. Studies suggest urban residents generally exhibit higher health awareness but face increased stress levels, which may impact recovery. This finding is supported by **Kim et al., (2020)** who conducted a study about lumbar decompression surgery outcomes in a mixed rural-urban population and found that approximately half of participants resided in urban areas. On the other hand, this result is disagreed with a study conducted by **Patel et al., (2022).** Titled about "Rural trends in lumbar decompression surgery: Insights from a tertiary hospital." the study revealed that only about one third of patients undergoing lumbar decompression were from urban areas.

By Assessing patient's living with their families, the present study revealed that most of participants lived with their families. From the investigator point of view, living with families provides patients with critical emotional and physical support during recovery, enhancing adherence to self-care practices. Family involvement aids in wound care, mobility assistance, and infection prevention, reducing post-surgical complications. This result in the same line with a study from **Kim et al., (2020)** who conducted a study on lumbar spine surgery patients and reported that the majority of participants lived with their families, emphasizing the role of family support in recovery outcomes. On the other hand, **Jansson et al., (2023)** observed a contrasting result in patients recovering from lumbar decompression surgery, about half of participants reporting they lived with family.

In relation to the work of the studied patients, these study findings illustrated that more than two thirds of them were working and the majority of them working in jobs that requires muscular effort. From the researcher point of view, patients engaged in physically demanding jobs may face higher risks of postoperative complications due to insufficient rest and overexertion. This result is agreed with **Parsch et al., (2020)** who carried out a study about "Work and recovery post-lumbar surgery: A demographic analysis" who found that more than two thirds of patients were working and the majority of them working in jobs that requires muscular effort. Heavy manual working is the main reason for many spine problems. Physically demanding occupations are widely spread among people and as a result among the study group.

Considering patient's monthly cost, the present study indicated that about two thirds of the studied patients' monthly income was enough for the cost of treatment. From the investigator point of view, insufficient income limits access to postoperative care, compromises adherence to prescribed treatments, and delays recovery. Financial stress reduces focus on self-care, increasing risks of complications like infections and delayed wound healing. This result is agreed with a study by **Kim et al., (2020)** who found out that a significant proportion of patients undergoing lumbar decompression surgery had an income level that was adequate to cover their treatment costs. More than two-thirds of the participants reported that their monthly income was sufficient for healthcare expenses. On the other hand, this result is disagreed with a study conducted by **Wang et al., (2021).** Titled about "Healthcare affordability and financial burden for spinal surgery patients in urban settings." which revealed that only about half of the participants felt that their income was sufficient to cover the full treatment costs for lumbar decompression surgery.

Part II: History of the studied patients regarding lumbar decompression surgery.

By assessing the clinical data of the studied patients, the study results revealed that about half of the studied patients their weight were from 80 to 100 kg., This result is agreed with **Ross et al., (2021).** Who carried out a study about "Trends in weight and body mass index after spinal surgery for degenerative disease". And indicated that the majority of patients was 91.8 kg, and BMI was 29.2.

Concerning the weight of the studied patients, the study results showed that more than one third of them their height were from 170 to 180 cm. This result is agreed with **Gadjradj et al., (2023).** Who carried out a study about "Decompression alone versus decompression with fusion in patients with lumbar spinal stenosis with degenerative spondylolisthesis: a systematic review and meta-analysis." the study examined outcomes after lumbar decompression surgery and reported that the majority of patients fell within the height range of 170–180 cm.

In relation to the obesity, the study results showed that more than one third of them were moderate obesity. This result is agreed with **Eghrari et al., (2024),** who carried out a study about "Impact of Body Mass Index on Opioid Prescriptions Following Lumbar Spine Surgery. "The study examined 21,997 total patients were included in the analysis and reported that about one third of patients had BMI more than normal range. From the investigator point of view, this data of height and weight with moderate obesity may due to most of studied patients were male, work hardly and live in urban areas.

Regarding the present history of the studied patients, this study revealed that more than one third of the studied patients' the reason for the surgery was spinal injuries as fracture. From the investigator point of view, this finding underscores the significant role of traumatic events as a leading cause for this type of surgical intervention. This result is agreed with **Francis et al., (2022).** Who carried out a study about "Lumbar decompression surgery for cauda equina syndrome—comparison of complication rates between daytime and overnight operating." The study confirmed that lumbar decompression is often performed for spinal injuries, including fractures and herniated discs and the majority of the patients went under surgery due to this reason.

In relation to the Complications after surgery, this study revealed that more than one third of the studied patients had performed the surgery since less than a week ago, more than two thirds of them were suffering from a complication after the surgery and about two thirds of them were suffering from numbness of the limb as a complication after the surgery. From researcher point of view, these findings emphasize the need for enhanced post-operative monitoring and early intervention strategies to address such complications effectively. This result is agreed with **Manni et al., (2023).** Who carried out a study about "Rehabilitation after lumbar spine surgery in adults: a systematic review with meta-analysis.". And reported that complications like numbness and leg pain are prevalent after lumbar decompression. It

mentioned residual numbness in about two-thirds of patients with pre-existing nerve symptoms. The risk was associated with nerve damage or incomplete decompression during surgery.

Regarding Pain exacerbation by standing and alleviation by comfort, this study revealed that more than half of the studied patient's factor that elevate pain in the affected part was standing for long periods. More than half of them the most common factor that decrease pain in the affected part was comfort. From researcher point of view, these observations highlight the importance of educating patients on pain management strategies and encouraging practices that minimize prolonged standing to improve post-surgical recovery outcomes. This result is agreed with **Francis et al., (2022).** Who carried out a study and reported that prolonged standing is cited as a factor exacerbating pain, whereas rest, supportive postures, and gradual physical therapy help reduce discomfort post-surgery. This is consistent with observations of pain management and recovery in lumbar decompression patients.

Concerning the past history of the studied patients, this study displayed that the minority of the studied patients had chronic diseases and less than one third of them had rheumatoid arthritis, hypertension and diabetes mellitus. From investigator point of view, these findings underscore the importance of considering pre-existing chronic conditions in the comprehensive assessment and management of patients undergoing lumbar decompression surgery. This result is agreed with a study from **Kato et al., (2022),** a study about "Postoperative outcomes after degenerative lumbar spine surgery in rheumatoid arthritis patients-a propensity score-matched analysis." This study found that patients with lumbar spinal stenosis and other degenerative spine diseases had comorbidities including rheumatoid arthritis (RA), hypertension, and diabetes. This study reported less than one third of them had chronic disease, with RA being a notable comorbidity in spinal surgery patients.

Regarding the previous Injuries and Fractures of the studied patients, this study displayed that more than two thirds of them had pervious significant injuries and had fractures. From investigator point of view, this highlights the substantial role of prior trauma in contributing to the need for surgical interventions such as lumbar decompression surgery and emphasize the necessity of addressing injury prevention and post-trauma care to mitigate long-term complications. This result is agreed with a study from **Katz, et al., (2022).** a study about "Diagnosis and management of lumbar spinal stenosis.". This study found that the majority of patients undergoing lumbar decompression surgery had prior significant injuries, including fractures and spinal trauma. Although there are other reasons than fractures, but prior injuries are a significant factor influencing surgical decision.

By assessing orthopedic Surgery History and external fixation of the studied patients, this study revealed that the majority of them hadn't had orthopedic surgery previously and half of them had external fixation surgery. From investigator point of view, these findings suggest a diverse surgical background among the patients and highlight the relevance of evaluating prior surgical experiences in planning post-operative care and rehabilitation. This result is agreed with a study from **Kato et al., (2022).** Who found that the majority of patients undergoing decompression surgery had no prior orthopedic surgeries, with external fixation often being part of their history, especially for those with more complex cases.

Part III: Patients' Level of daily living activities post lumbar decompression surgery.

In relation to dependency of daily living activities of patients post lumbar decompression surgery, the present study showed that, about two thirds of the studied patients had independent level of daily living activities. And one third of the studied patients had need assistance level of daily living activities post lumbar decompression surgery. This result is agreed with **Brown & Harrison, (2018).** Titled "Independence in daily activities post lumbar surgery: A longitudinal study." The study found that more than two thirds of their studied cohort post-lumbar decompression surgery maintained an independent level of daily activities.

Part IV: Patients' Level of self-care aspect post lumbar decompression surgery.

Regarding the physical aspect of self-care post lumbar decompression surgery of the studied patients . The study revealed that, about two thirds of the studied patients never played exercise. More than two thirds of them sometimes wear clothes that feel good and get enough sleep. The majority of the studied patients always take care of personal hygiene. From the investigator point of view, the lack of exercise post-lumbar decompression surgery, as observed in two-thirds of patients, can be attributed to insufficient patient education and fear of aggravating pain or injury. Scientific evidence supports that controlled physical activity enhances recovery by improving muscle strength, flexibility, and reducing postoperative complications. The absence of exercise may hinder proper spinal healing and delay functional recovery. Furthermore, patients may not fully understand the importance of gradual physical rehabilitation in preventing future issues. Proper educational interventions are essential to overcome these barriers and promote physical activity.

This result is agreed with **Chang et al (2022).** Titled "Exercise adherence and self-management in spinal surgery rehabilitation: A longitudinal study." Who conducted a systematic review on rehabilitation after lumbar spinal surgery, including physical self-care activities. They found that many patients struggle with exercise adherence, and while some show improvement in self-care aspects like hygiene and routine, consistent exercise remains a challenge for about two-thirds of patients.

Considering the psychological – emotional aspect of self-care post lumbar decompression surgery, this study clarified that, about two thirds of the studied patients never go on vacations or day trips. More than two thirds of them sometimes take time off from work, school, and other obligations and learn new things, unrelated to work or school. From the investigator point of view, the lack of vacations or day trips, as observed in two-thirds of patients post lumbar decompression surgery, denot a potential gap in psychological and emotional recovery. Scientific studies emphasize that psychological well-being significantly impacts physical recovery, and relaxation activities, such as vacations, reduce stress and improve overall health outcomes. Additionally, taking time off from work or school allows patients to focus on healing and self-care, promoting recovery. Emotional downtime can aid in coping with pain and improve mental resilience, crucial for postoperative healing. Therefore, addressing the psychological needs through leisure and rest is vital for holistic recovery. This result is agreed with **Jansson et al (2021)** who investigated psychological recovery among post-lumbar surgery patients and found the majority reporting limited leisure activities such as vacations or outings, often due to physical and psychological constraints during recovery.

Considering the social aspect of self-care post lumbar decompression surgery of the studied patients, this study revealed that about half of the studied patients never meet new people. More than two thirds of them sometimes have stimulating conversations and ask others for help, when needed. From the investigator point of view, limited social interaction post-surgery may hinder psychological recovery, as social engagement reduces stress and enhances coping mechanisms. Stimulating conversations and seeking help indicate partial support networks, crucial for emotional well-being and adherence to self-care regimens. Scientific evidence links social isolation to delayed recovery, increased pain perception, and poor adherence to medical advice. Enhancing social support systems and fostering communication skills are essential for optimizing recovery outcomes and improving self-care practices.

This study is agreed with **Kim et al (2022)** who conducted a study analyzing patient recovery post-lumbar spine surgeries, focusing on their social behaviors. It was found that approximately more than half of participants seldom interacted socially after surgery. The study revealed the role of psychological stress and physical limitations in limiting socialization.

Regarding the spiritual aspect of self-care post lumbar decompression surgery of the studied patients, this study showed that, the majority of the studied patients never appreciate art that is impactful (e.g. music, film, literature). About two thirds of them sometimes spend time in nature and set aside time for thought and reflection. From the investigator point of view, neglecting impactful art post-surgery may hinder emotional healing, as research shows music and art improve psychological well-being and reduce pain perception. Spending time in nature supports stress reduction, promotes mental clarity, and accelerates recovery by lowering cortisol levels. Reflection fosters coping mechanisms, enhancing resilience and adherence to self-care regimens. Integrating these spiritual aspects into postoperative education could optimize holistic recovery and patient outcomes.

This result is agreed with **Balboni et al (2022).** Who conducted a systematic analysis and found that spiritual practices such as reflection and connecting with nature were inconsistently prioritized by patients, aligning with findings that the majority engaged in nature-based activities.

As regards the professional aspect of self-care post lumbar decompression surgery of the studied patients, this study showed that, more than two thirds of the studied patients sometimes make time to talk and build relationships with colleagues and take breaks during work. From the investigator point of view, building relationships with colleagues and taking breaks during work enhance psychological well-being, reduce stress, and support recovery post lumbar decompression surgery. These actions improve work-life balance, indirectly fostering adherence to self-care practices. Scientific evidence links social interaction to lower cortisol levels, aiding pain management and reducing complications. Frequent breaks reduce physical strain, minimizing re-injury risk. Encouraging workplace adjustments promotes sustainable recovery outcomes.

This result is agreed with **Abbott et al (2020)**. titled “Patient experiences and adherence post-lumbar fusion: Rehabilitation implications.” who explored patients’ post-lumbar fusion experiences, revealing that the majority of the patients made time to talk and build relationships with colleagues and take breaks during work. Also patients were highlighting the importance of communication and collaboration in rehabilitation.

Part V: Relation and Correlation between the studied variable.

By evaluating the relation between the patients' socio-demographic data and their total level of daily living activities, this study revealed that there was a highly statistically significant relationship between the age of the studied patients with their total level of daily living activities. And there was a statistically significant relationship between marital status, educational level of the studied patients with their total level of daily living activities. From researcher point of view, older patients may require additional assistance and more focused interventions to support their recovery and daily functioning. The marital status and educational level correlations suggest that patients with more social support and higher education levels may experience fewer barriers to recovery, as they are more likely to have access to information and help with daily activities. This study is in agreement with **Jansson et al., (2023),** who made A study analyzing lumbar decompression surgery patients revealed significant relationships between age and functional recovery, as well as strong correlations between marital status and education level with daily activities.

Considering the relation between the patients' socio-demographic data and their total level of self-care aspects, this study revealed that, there was a highly statistically significant relationship between live with of the studied patients with their total level of self-care. And there was a statistically significant relationship between educational level of the studied patients with their total level of self-care. From the investigator point of view, the researcher posits that living with others may provide essential social support, facilitating better adherence to self-care practices, while higher educational attainment could enhance understanding and execution of postoperative

care instructions. These factors are crucial, as inadequate self-care can impede recovery and diminish quality of life. This study is agreed with a study by **Vellone et al., (2019)** who found that individuals with heart failure who had higher educational levels demonstrated superior self-care behaviors, emphasizing the role of education in health management.

Finally, this study achieved its aim by assessing the self-care activities of patients following lumbar decompression surgery. It evaluated the level of self care among patients regarding postoperative activity restrictions and highlighted areas where further education.

Conclusion

Based on the result of the presented study and research questions, the study concluded that: Two thirds of the studied patients had independent level of daily living activities, and one third of the studied patients had need assistance level of daily living activities post lumbar decompression surgery.

Most of the studied patients had poor level of total self-care aspects, and only minority of them had average level of total self-care aspects.

Recommendation

In the light of the result of the present study, the following recommendations are suggested:

- Establishment of social media, booklet, and pamphlet to increase patient information and awareness about lumbar decompression surgery.
- Periodical follow up for patients with lumbar decompression surgery to enhance self care and daily activity.
- Health education through mass media concerning lumbar decompression surgery with necessary information its causes and how to avoid its occurrence through proper use of body mechanics.
- Replication of the current study on a larger sample and another setting.
- Further studies for factors affecting patients' self care activities and patients outcomes post lumbar decompression surgery.

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