



Discharge Plan Regarding Patients Self Care Practice Undergoing Herniated Lumbar Disc Surgery

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Abstract

Background: One of the most common procedures performed worldwide is for herniated discs. The discharge plan for a patient having lumbar disc herniation (LDH) surgery expedites recovery, guarantees the efficacy of therapy, enhances self-care routines, and successfully prevents recurrence. **Aim of the study:** Was to evaluate the effect of implementing discharge plan regarding patients self-care practice undergoing herniated lumbar disc surgery. **Subjects and Methods: Research design:** A quasi experimental research design was used. **Setting:** The study was carried out in the outpatient clinic and the neurosurgery department at New Surgery Hospital at Zagazig University Hospital. **Subjects:** From the aforementioned context, sixty adult patients were chosen as a purposeful sample. **Tool of data collection:** Two tools were employed to gather data., as follow: Patients' Interviewing Questionnaire and Patient Self-Care Practices. **Results:** revealed that the most (90%) of patients in the study group had a satisfactory total level of knowledge following the implementation of the discharge plan, compared to less than one-fifth (16.7%) of patients in the control group. Additionally, the most of patients (90.0%) in the study group had a satisfactory level regarding total self-care practices following the implementation of the discharge plan, while more than one-tenth (13.3%) of patients in the control group had a satisfactory level. **Conclusion:** Implementation of discharge planning regarding LDH surgery had a statistically significant effect in improving self-care practices, and knowledge of patients in the study group compared to the control group. There was statistically significant positive correlation between total self-care practices, and total knowledge among the patients in the study group post implementation of discharge plan, which supported the stated hypothesis. **Recommendation:** Further research is needed to assess the effects of preoperative education on surgical outcomes and self-care activities in patients undergoing LDH surgery.

Keywords: Discharge Plan, Herniated Lumbar Disc Surgery and Self Care Practice.

Introduction

A frequent medical condition, lumbar herniated discs are the most common diagnostic among lumbar spine degenerative anomalies and

are the main reason adult population undergoes spinal surgery¹. A localized displacement of disc material outside the typical boundaries of the

intervertebral disc space is known as lumbar disc herniation.²

The most typical location of disc herniation is the lower lumbar spine (L4/5 and L5/S1 level).³ One of the most significant aspects of treating people with LDH is surgery. In the event that six to eight weeks of conservative therapy do not result in recovery, there is an exacerbation of pain, a development of neurologic deficiency, and diagnostic testing support the clinical findings.⁴

Before a patient undergoing lumbar spine surgery is ready to leave the acute care setting, the nurse does a comprehensive discharge planning session to ensure that the patient is actively participating in his or her recovery and that the treatment plan is being followed. By evaluating a patient's perceived capacity for self-care, nurses can establish a care plan and carry out the necessary nursing interventions during their hospital stay^{5&6}.

The capacity to carry out actions for preserving health, controlling health issues, and regaining daily functioning is known as self-care. Enhancing one's quality of life is a crucial and pragmatic undertaking that is vital for the advancement of patients suffering from both acute and chronic illnesses in both healthcare and home care settings⁶.

Before and after surgery, medical professionals should give patients thorough health education or explanations to encourage self-care and physical function and to make it possible for them to engage more fully in postoperative rehabilitation and recovery treatment programs⁷. A strong capacity for self-care is also essential. Therefore, during the discharge plan, patient education and that of their primary caregivers are crucial.⁸

Significance of the study:

Because there are no national statistics available, it is unknown how common lumbar disc

herniation is in Egypt. However, through 2021, there were 100 patients admitted to the new surgery hospital and outpatient clinic at Zagazig University Hospital due to lumbar disc herniation.⁵⁰

One of the spinal disorders, lumbar disc herniation, impairs a person's physical and functional capacities as well as negatively affects self-care³⁵. It is rapidly expanding as a major source of medical expenses and a worldwide public health concern⁵. Following therapy, patients with lumbar disc prolapse may encounter a range of repercussions that, if self-care is neglected, could lead to disability.²³

The most frequent spine condition requiring surgery is lumbar disc herniation¹⁰. Discharge training has improved patients' capacities for self-care, which has subsequently raised their confidence. Thus, the educational role of nurses is important¹¹. Additionally, educating people about self-care effectively lessens the duration of hospital stays, shortens recovery times, lowers complications, and lowers the rate of rehospitalization¹².

Operational Definitions:

Discharge plan: It is the crucial link that connects the patient's hospital therapy with the post-discharge care given. A patient's personalized discharge plan is created before they are permitted to leave the hospital and return home. Within this study, the term "discharge plan" designates a series of guidelines created by a researcher for supplying patients with information on surgery for a herniated lumbar disc upon their discharge from the hospital.

Self-care practice: is used to describe the act of carrying out everyday activities. Periodic follow-up, self-care, lifting and carrying objects, walking, getting into and out of chairs, standing, sitting in cars, getting into and out of bed, sexuality, social and spiritual life, travel, push-ups, straight

leg raises, sciatic nerve sliding exercises, lumbar-flexion exercises, seated chair stretch exercises, and back flexion exercises are all included.

Aim of the study:

The aim of this study was to evaluate the effect of implementing discharge plan regarding patients' self-care practice undergoing herniated lumbar disc surgery. **This aim was achieved through the following objectives:**

1-Assess patients' level of knowledge regarding lumbar disc herniation.

2- Determine self-care practice for patients undergoing herniated lumbar disc surgery.

3- Design and implement discharge plan regarding self-care practice for patients undergoing herniated lumbar disc surgery.

Research Hypothesis:

1-Mean knowledge scores of patients in the study group will be higher than those patients in the control group post implementation of discharge plan.

2- Patient's will be able to perform self-care practice on their own "without assistance" post implementation of discharge plan.

3-There will be a positive correlation between knowledge and self-care practices post implementation of discharge plan.

Subjects and Methods:

Research design:

This study used a quasi-experimental research approach, with pre- and post-study controls.

Setting:

Outpatient clinic and the neurosurgery department of New Surgery Hospital at Zagazig University Hospital, Zagazig Governate, Egypt. Neurosurgery department are located on the six floor of New Surgery Hospital. The department is divided into two units, one for men and the other

for women. Each unit has three rooms with six beds apiece. The outpatient clinic of neurology is located on the six floor of the outpatient clinics. There are five rooms in total: two lecture halls, one for follow-up patients, one for epileptic patients, and one for new cases.

Subjects:

For this research, a purposeful sample of 60 patients with herniated lumbar discs was gathered, and the patients were subsequently split into two equal groups of 30, one for the study and one for the control.

Inclusion Criteria: The following conditions must be met for a patient to be eligible for inclusion in the study: they must be between the ages of 18 and 60, of both sexes, free from cognitive or hearing impairments, able to understand instructions, and willing to participate in order for magnetic resonance imaging to diagnose disc herniation. **Exclusion Criteria:** patients who previously participated in any similar educational programs, have a history of lumbar surgery with a poor surgical outcome, or have chronic conditions such as cancer or liver cirrhosis.

Tools of data collection:

Two tools were used to collect necessary data.

Tool I: Patients' interviewing questionnaire included three parts as follows:

First part: Demographic characteristics: concerned with patient's personal data, contained eight questions covered age, gender, marital status, educational level, occupation, job nature, occupational changes and residence.

Second part: Patient's health history: involved 16 question to assess patient's health history, regarding past, present health medical and surgical history ,family history and preoperative drugs¹³.

Third part: Patients' knowledge assessment questionnaire: Composed of 48

questions to assess patients' knowledge. **It included four sections as follows:-**

First section: Patients' knowledge regarding anatomy and physiology of vertebral column and disc herniation disease: Such as: definition, mechanism, causes, risk factor, signs and symptoms, complication and diagnosis. This include 20 questions (Q1-Q20), eight questions in the form of MCQ and 12 true and false questions or i don't know ^{14, 15, 16, & 17}.

Second section: Patient's knowledge regarding pain management: used to assess patient's knowledge concerning factors that increase or decrease pain. Addressed six questions (Q21- Q26) in the form of true and false questions or i don't know ¹⁸.

Third section: Patient's knowledge regarding discectomy: used to assess patient's knowledge concerning discectomy e. g definition, indications, types, postoperative complication, pre – post operative care e.g. pre-operative investigation, number of preoperative fasting hours, pre operative preparation (skin care), postoperative guidelines to be followed by patients. It include 16 questions (Q27- Q42) in the form of true and false questions or i don't know ¹⁹.

Fourth section: Patient knowledge regarding discharge instructions: used to assess patient's knowledge regarding discharge instructions e.g., correct and incorrect body position, correct position for lifting things, correct position for sleeping after surgery and if the patients received discharge instructions or not. Involved six questions (Q43- Q48), one question in the form of yes or no and five " MCQ " questions^{20, 21 & 22}.

The scoring system for patient's knowledge: Responses scores were assigned as follows: the scores assigned to each item ranged from 0 to 1 point, as follows, one grade for each correct option, zero grade for each incorrect option or an unknown answer. Total scores ranged from 0

to 48, patients were categorized as, satisfactory at limit $\geq 60\%$, unsatisfactory at limit $< 60\%$ according to statistical analysis.

Tool II: Patient Self-Care Practices:

used to identify particular descriptions of the self-care practices that patients with lumbar disc prolapse actually follow in their day-to-day activities following surgery. It comprised 70 elements divided into 20 major sections, including , periodic follow-up (one point), personal care(4 points) ,lifting and transporting objects(5 points), walking (3 points), getting into a chair(4 points) , getting out of a chair(6 points) , getting into a couch (4points),sitting in the car (3 points),standing(4 points) , getting into bed (3 points), getting out of bed(4 points) ,sexuality(3 points) ,social and spiritual life (4 points), travel (3 points), push up exercise(4 points) , straight leg raise exercise (3 points), sciatic nerve sliding exercise(4 points), lumbar-flexion exercise (3 points), seated chair stretch exercise (2 points)and back flexion stretch exercise (3 points)^{23, 24, 25, 26, 22, 27}.

Scoring system for Patient Self-Care Practices:

Each element of each practice was marked as " done and not done ". These were each rated from one to zero, with a higher score indicating better practice, the total scores for all practices were added and divided by the number of steps to calculate a mean score. Means and standard deviations for the study and control groups were calculated before and after the implementation of discharge Plan. The overall practice score considered satisfactory when total score equal or above 60% and unsatisfactory if it below 60% based on statistical analysis.

Tools validity& Reliability:

The tools were evaluated for clarity, relevance, comprehensiveness, applicability, and

understanding by a five-person jury of experts (one professor, three assistant professors in medical surgical nursing, and one professor of medical staff). Rephrasing or rewording, as well as occasionally modifying some questions, were some of the alterations that were applied in accordance with the expertise's modifications and the pilot study's outcomes. The completed form had been sketched.

The internal consistency technique was used to assess the dependability of the tools. The reliability coefficient of Cronbach's alpha was determined to be 0.793 for patient self-care practices and 0.801 for the patient knowledge assessment questionnaire, respectively. Prior to the start of data collecting, reliability testing was done.

Field work:

September 2022 to the end of February 2023 is the 6-month timeframe. During the study period, each patient was questioned separately in two shifts on Saturday, Sunday, and Tuesday. The interviews took place in the morning and afternoon. The researcher provided her phone number to the patient and communicated with them via WhatsApp and other social media platforms in order to address any queries and clarify any inaccuracies.

The following five stages comprised the execution of the study:

Preparatory phase:

Literature review (medical and nursing textbooks, periodicals, online resources on lumbar dislocation surgery, self-care practices) in order to present data and a discharge plan.

Assessment phase:

The researcher visited the study setting, met with the directors and head nurses to explain the study aim and procedures, and to gain their approval and cooperation. Then, the researcher met with the patients who fulfilled the eligibility criteria and started to recruit the sample, explained to them the purpose of the study and its procedures as well as their rights, and invited them to participate.

Those who consisted were assigned either to the study or to the control group. The researcher also explained what is expected from each patient in the study or control groups to do for participating in the study. Individual interviews were conducted with those who provided consent, utilizing the data collecting form. The data collected directed the researcher as they prepared the discharge plan booklet and served as baseline data or pretest.

Planning phase:

The researcher created a discharge plan to educate patients and enhance their understanding of herniated lumbar disc surgery and self-care practices using the assessment results and relevant literature. Group discussion, demonstration, re-demonstration, microteaching, task based learning and synchronous & A synchronous learning were all part of the teaching method. Additional teaching tools included instructional videos on selected exercise, power point presentations, and a full-colored booklet created by the researcher in Arabic and distributed to patients as a guide and resource to help them understand all aspects of herniated lumbar disc surgery.

Implementation phase:

Group (I) Control group :The control group followed the routine hospital care prescribed by the surgical team and consists of routine preoperative care, routine postoperative care and routine pharmacological treatment. **Group (II) study group:** The study group received discharge plan in the form of sessions.

The discharge plan was implemented to the study group in 10 sessions (one orientation, four theoretical sessions and five practical sessions). Each session lasted **20-45** minutes. The booklet was written and presented in Arabic. At the beginning of the first session, an orientation on the discharge plan and it's purpose was presented. Each session began with a summary of what had been taught in

the previous session, and the objectives of the new one, taking into account the use of simple language adapted to the level of the patients. Motivation and reinforcement were used during training sessions to enhance learning.

The booklets were distributed to the studied patients at the end of the sessions. The theoretical part was presented in group discussions using educational videos, booklets and power point. The practical part was presented in the form of demonstration and demonstration repetition.

The content of the sessions covered theoretical and practical parts as the following: -

The first three sessions (Theoretical sessions): it began at outpatient clinic (preoperative admission). **The 1st session** was for orientation about the discharge plan. **The 2nd and 3rd sessions (Theoretical sessions)** focused on anatomy and physiology of vertebral column and disc herniation disease Such as: definition, most vulnerable groups, causes, symptoms, complication and methods of treatment.

Session 4 and 5 (Theoretical sessions): it began after admission (preoperative). **Session four** focused on indication for surgery, types for surgery, post operative complication and preoperative examination. **Session five** focused on post-operative instructions, the right position for sleeping postoperative and some health habits after surgery.

Five sessions covered practical part include self-care practices and discharge instructions as follows:

Session 6 (practical session) started after admission (preoperative) and included practice about push up exercise and straight leg raise exercise. **Session 7 (practical session) started** after admission (preoperative) and included practice about sciatic nerve sliding exercise and lumbar-flexion exercise. **Session 8 (practical session)**

(preoperative) after admission focused on seated chair stretch exercise and back flexion stretch exercise.

Session 9 (practical session) started after admission (preoperative) and focused on training patients on proper way for lifting, lowering and transferring heavy object and proper way for pushing and pulling heavy object. **Session 10 (practical session)** started after admission (preoperative) and focused on training patients on proper way for sitting, standing, getting into a couch, proper way for sitting in the car and getting into and out of a chair and proper way for getting into and out of the bed.

All training sessions were observed, and feedback was given to patients. The researcher was available three days per week to answer any questions and respond to any needs from patients.

The researcher demonstrated exercises, and the patient repeated it several times until they performed the technique effectively and correctly. The study group performed exercises including three replicates of each exercise three times per day (morning, afternoon and evening). At the discharge time, the patients had been given and advised with home exercise for one month.

Participants were advised to carry out. Patients independently completed the prescribed exercises and practices for self-care at home, noting the time they worked out each day on the follow-up schedule. They were provided this schedule at the outset of the discharge plan application process, along with instructions on how to complete it. The researcher recorded the exercises and provided them to the participants via a WhatsApp group and other social media platforms in case the participants couldn't recall the procedure for each exercise.

The researcher called the patients for a follow-up and urged them to perform the exercise program totally and consistently at home.

Evaluation phase

Using identical data gathering tools, every patient in the study underwent two evaluations. Pre-testing took place at the time of recruitment, and post-testing took place a month after patient discharge. To evaluate the effect of implementing discharge plan regarding patients self-care practice undergoing herniated lumbar disc surgery.

Pilot study:

A pilot study was carried out on six patients (10%) of the total study sample to test whether the tools are clear, understandable, feasible, applicable, and time consuming. Necessary modifications were done according to the pilot study results. Pilot subjects were later excluded from the main study sample.

Administrative and ethical consideration:

The general director of Zagazig University Hospitals received the required approvals, which were acquired from the dean of the nursing faculty. After stating the goal of the study, permission to conduct it was acquired from the head of the aforementioned setting.

In the first interview, all possible subjects were told about the nature, objectives, and benefits of the research, as well as the fact that participation is entirely optional. The coding of all data further guaranteed the subjects' privacy and confidentiality.

The researcher guaranteed that all information gathered would be kept private, utilized solely to further the study's objectives, and that the subjects would not be put in danger while the research was being conducted.

In addition, an informed consent was obtained from each participant prior to inclusion into the study and after full explanation of its aim and procedures. They were informed about their rights to refuse or withdraw from the study at any time with no reason to be given or consequences.

Ethical code: M.D.Zu.R/182/13 /6/2022

Statistical analysis:

The collected data organized, tabulated and statistically analyzed using Statistical Package for Social Science (SPSS) version 25 for windows, running on IBM compatible computer. Descriptive statistics were applied (e.g. frequency, percentages, mean and standard deviation). Qualitative variables were compared using qui square test (x²) as the test of significance, and independent (t) test was used to compare mean score between two groups. Correlation coefficient test (r) was used to test the correlation between studied variables. Reliability of the study tools was done using Cronbach's Alpha. A significant level value was considered when $p < 0.05$ and a highly significant level value was considered when $p < 0.01$. No statistical significance difference was considered when $p > 0.05$.

Results:

Table1: Shows that, more than two thirds (70.0%) of patients in the study group and more than three quarters (76.7%) of patients in the control group aged < 50 years with mean \pm SD (42.2 ± 10.3 & 41.03 ± 10.1 respectively), less than two thirds (63.3%) of patients in the study group and less than three quarters (73.3%) of patients in the control group were male. Regarding the work nature, more than two thirds (66.7 %) of patients in both groups had a hard work. Also, more than three quarters (76.2%) of patients in the study group and majority (87.5%) of patients in the control group had occupational change.

Table 2: Reveals that, the highest percentages (93.3% and 83.3% respectively) of patients in the study and control group had no chronic disease. As well as majority (83.3%) of patients in the study group and most (90.0%) of patients in the control group had no any operations before. Less than three quarters (70.0 %) of both

groups were nonsmokers. Less than three quarters (73.4%) of patients in the study group and more than half (56.7%) of patients in the control group were suffering from a herniated disc for 1- <5 years. Incorrect rolling and twisting was the cause for herniated disc for all (100.0%) of patients in the study group. While, carrying heavy weights was the cause for herniated disc for all (100.0%) of patients in the control group.

Table3: Shows that, half (50.0%) of patients in the study group and more than two fifths (43.3%) of patients in the control group weighted ≥ 90 kg with mean \pm S.D (86.4 \pm 9.30 & 87.20 \pm 11.2 respectively). Also, half (50.0%) of patients in the study group and more than half (53.3%) of patients in the control group were 150 -<160 cm in height, two fifths (40.0%) of patients in the study group and half (50.0%) of patients in the control group had weight gain regarding BMI. Additionally, the majority (83.3%) of both groups with fourth and fifth lumbar vertebrae as affected lumbar vertebrae.

Table4: Demonstrates that, the majority (86.7%) of patients in the study group had unsatisfactory total level of knowledge pre implementation of discharge plan compared to, most (90%) had satisfactory total level of knowledge post implementation of discharge plan. While, the most (90%) and majority (83.3%) of patients in the control group had unsatisfactory total level of knowledge pre and post implementation of discharge plan. Moreover, there was no significant difference between study and control group regarding total knowledge at pre implementation of discharge plan (P= 0.688).

Also, there was no significant difference between total knowledge among the control group pre and post implementation of self-care practice (P = 0.448). Finally, there were high statistically significant differences between pre and post implementation of discharge plan regarding total knowledge in the study group(p =0.000).

Table 5: Clarifies that, most (90.0%) of patients in the study group had satisfactory level regarding total self-care practices post implementation of discharge plan with mean \pm S.D 61.93 \pm 2.8 compared to, more than one tenth (13.3%) of patients in the control group had satisfactory level with mean \pm S.D 17.3 \pm 14.03. Finally, there were high statistically significant differences between pre and post implementation of discharge plan regarding total self-care practices in the study group (p =0.000).

Table 6: Reveals that, there was a positive correlation coefficient between total patients' knowledge and total self-care practices of the study group patients (r =0.579 at p = 0.000) post implementation of discharge plan. Also, there was a positive correlation coefficient between total patients' knowledge and total self-care practices of the control group patients (r =0.473 at p = 0.001) post implementation of discharge plan.

Discussion:

Regarding to demographic characteristics of the studied patients, the present study revealed that, more than two thirds of patients in the study group and more than three quarters of patients in the control group aged < 50 years with mean 42.2 & 41.03 respectively. This result can be explained by increase incidence of lumbar disc herniation and recurrent exposure to life stressors in younger adults in which this age group represent working-age population.

The finding of the present study in the same context with **Ahmed et al, (2020)**²³, in the study entitled “Self-Care Practices of Patients with Lumbar Disc Prolapse in The Postoperative Period”, stated that, less than one-third of the patients under study were between the ages of thirty and forty, and the same percentage were between the ages of forty and fifty. On the other hand, though, **Abbady et al, (2019)**²⁸, in the study entitled “Assessment of Daily Living Activities

Among Elderly Patient with Low Back Pain at Ministry Health Hospitals”, founded that, the mean age of the studied patients ranged between 60 and 80 years with mean 64.89 ± 4.64 years.

Related to Gender, the results of the present study showed that less than two thirds of patients in the study group and less than three quarters of patients in the control group were male. Gender differences may be a result of differences in lifting patterns and work methods between males and females. In agreement with **Çatal & Cebeci, (2023)**²⁹, in the study about “The Effect of Discharge Training with the Teach-Back Method on Post-Discharge Challenges in Lumbar Disc Herniation Patients” showed that, less than two thirds of the patients in the intervention group and more than half of the patients in the control group were males.

This finding is supported by **Chen et al, (2020)**³⁰, in the study about “Surgical Outcomes of Full Endoscopic Spinal Surgery for Lumbar Disc Herniation Over A 10-Year Period” who reported that, less than two thirds of patients were male. In contrast **Rizk& Ali, (2021)**³¹, in the study about “Effect of Preoperative Patient Education on Quality of Recovery for Patient Undergoing Lumber Discectomy” stated that, more than two-thirds of the patients were female compared to one third of them were males.

Regarding marital status, the current research found that every patient in both groups was married. This finding is supported by **Zarei et al, (2018)**⁹, in the study about “The Effect of Multimedia-Based Nursing Visit on Preoperative Anxiety and Vital Signs in Patients Undergoing Lumbar Disc Herniation Surgery” who reported that, most of patients in the study group and more than three quarters of patients in the control group were married .

Regarding the work nature, the present study revealed that more than two thirds of patients in both groups had a hard work. This may reflect that nature of the work which causes

mechanical stress on the back and acts as a risk factor to develop lumbar disc herniation. In agreement with **Moaven et al, (2020)**³², who reported in the study entitled “Study of Re-Operational Risk Factors in Lumbar Herniated Disk Patients Referring to Golestan Hospital, Ahvaz from 2011 to 2015” that, more than two thirds of the patients under study were heavy work. Also, **Abd-Ella et al, (2021)**⁵, who reported in the study entitled “Effect of Discharge Plan on Satisfaction of Patients with Lumbar Disc Herniation Surgery” that, more than one quarter of the patients under study were heavy work.

Regarding occupational change, the current study revealed that more than three quarters of patients in the study group and majority of patients in the control group had occupational change. In the same context with **Ólafsson et al, (2018)**³³, in the study entitled “Cost of Low Back Pain: results from a national register study in Sweden” who documented that pain affects work in more than two thirds related to sick leave and early retirement. This finding is in contrast with **Habllass et al, (2020)**³⁴, who reported in the study entitled “Effect of Applying an Educational Program for Patients with lumbar laminectomy on Their Knowledge and Self-Care Activities” that all patients of study group and most of control group did not have occupational change.

Concerning place of residence, less than two thirds of the patients in the study group and more than three quarters of the patients in the control group, according to the study's results, lived in rural areas. This finding is supported by **Abd-Elzaher et al, (2023)**¹⁶, in the study entitled “Coping Strategies among Adult Patients with Lumber Disc Herniation ” who revealed that, more than two thirds of the studied patients were from rural areas.

The result of the present study revealed that, there were no statistical significant differences between patients in the study and control groups regarding demographic characteristics. This is

consistent with, **Saha & Goktas, (2022)³⁵**, in the study entitled “The Effect of Computer-Based Training on Self-care and Daily Living Activities in Patients With Lumbar Discectomy Surgery: A Randomized Controlled Study” revealed that, there was no statistical difference present between the study and control group patients regarding all sociodemographic characteristics.

Regarding chronic disease, the present study revealed that the highest percentages of patients in the study and control group had no chronic disease. This finding is supported by **Akkaya & Ayhan, (2023)³⁶**, in the study entitled “The Effect of In-Bed Turning and Mobilization Training Given to Patients Who Undergo Lumbar Disk Surgery on Postoperative First Mobility Level” who revealed that, majority of patients in the intervention and control group had no chronic disease. The finding of this study was congruent with, **Chu et al, (2020)⁷** in the study about “Simulated Health Education Measures After Lumbar Disk Herniation Surgery,” stated that, two fifths of patients in the experimental group and more than two fifths of patients in the control group had chronic disease.

Regarding previous operations, the present study revealed that majority of patients in the study group and most of patients in the control group had no any operations before. The previous result was supported by **Abd-El Mohsen et al, (2019)³⁷**, who reported in the study entitled “Effect of Nursing Rehabilitation Guide on Outcomes of Patients Undergoing Lumbar Discectomy” that, more than half of the study sample had no previous surgery. In the contrary, **Sinmaz & Akansel, (2021)⁴** in the study about “Experience of Pain and Satisfaction with Pain Management in Patients After A Lumbar Disc Herniation” stated that, less than two thirds of patients previously experienced surgery.

Concerning smoking, the present study revealed that less than three quarters of both groups were no smokers. The present finding is supported

by **Beck et al, (2021)³⁸**, in his study about “Association of Extended Duration of Sciatic Leg Pain With Worse Outcome After Lumbar Disc Herniation Surgery” stated that, the majority of the patients were nonsmokers. On the contrary, **He et al, (2021)³⁹**, in a study about “Effect of Continuous Nursing Based on Wechat Platform on Postoperative Rehabilitation of Patients With Lumbar Disc Herniation” showed that, less than two thirds of the control and study group patients had smoking history.

In relation to the duration of disease, Less than three quarters of patients in the study group and more than half’s of patients in the control group were suffering from a herniated disc for 1-<5 years. In the same context with **Mallepogu et al, (2019)⁴⁰**, in the study about “A Clinical Study of Surgical Management of Lumbar Disc Prolapse by Laminectomy and Discectomy” showed that, less than half of studied patients were suffering from a herniated disc for < 6 months. This finding is in contrast with **Yelmaiza et al., (2022)⁴¹**, who founded in the study entitled “The Risk Factors Affecting Disability Level of Lumbar Disc Herniation” that, less than two thirds of the studied patients were suffering from disc herniation since more than one year.

Regarding cause of herniated disc, the results of the present study revealed that, carrying heavy weights was the cause for herniated disc for majority of patients in the study group and for all patients in the control group. The present finding is supported by **Tarimo & Diener, (2017)⁴²**, in the study entitled “Knowledge, Attitudes and Beliefs on Contributing Factors Among Low Back Pain Patients Attending Outpatient Physiotherapy Treatment in Malawi” who reported that, most of patients reported that repetitive heavy lifting was the highest ranked contributing factors to low back pain. According to the fact reported that, these activities act as a cumulative load on the spine, increase strain on the

muscles of the lower back, accelerate lumbar disc prolapse, and increase low back pain.

Regarding body mass index, results of the present study revealed that, two fifths of patients in the study group and half of patients in the control group had weight gain regarding BMI. This finding is consistent with **Erdogan & Bulut, (2020)**⁴³, founded in the study entitled “Effectiveness of Computer Assisted Training of Patients Undergoing Lumbar Disc Herniation Surgery” who reported that, more than two fifths of study and control group were overweight. This is related to increased load on the spine that caused by over-weight with weak back muscles that protect the lumbar spine increase the risk for disc prolapse. Moreover, **Ahmed et al, (2023)**⁴⁴, who reported in the study entitled “The Effect of Nursing Rehabilitation Program on Quality of Life for Patients with Vertebral Disc in Beni-suef City” that, less than two thirds of the patients were overweight.

Regarding affected lumbar vertebrae, the results of the present study showed that the majority of the both groups with fourth and fifth lumbar vertebrae as affected lumbar vertebrae. These findings were in agreement with **Azemi et al, (2022)**⁴⁵, who reported in the study entitled “Prevalence of Lumbar Disk Herniation in Adult Patients with Low Back Pain Based in Magnetic Resonance Imaging Diagnosis” that, according to data obtained by MRI in this study, most cases of LDH were observed in L4–L5 followed by those in L3–L4 level and were significantly much higher than cases with herniation observed at L1–L2, L2–L3, and L5–S1 level.

Moreover, The findings of this study was in line with the result of **Yao et al, (2020)**⁴⁶, in study entitled “A comparison between the low back pain scales for patients with lumbar disc herniation: validity, reliability, and responsiveness” who reported that, over half of the patients with L4/L5 level herniation, and L5/S1 level herniation. The present finding explain that

the herniated lumbar disc is the most common, usually affecting L4-L5 and L5-S1. The reason is to be found in the weight this part of the spine bears, incorrect motor skills and bad posture.

Regarding total knowledge score, the current study revealed that, most of patients in the study group post intervention had total satisfactory knowledge compared to, less than one fifth of patients in the control group post intervention had total satisfactory knowledge, there were high statistically significant differences regarding total knowledge pre and post implementation of discharge plan among patients in the study group. In the same context with **Ali & Hamed, (2019)**⁴⁷, who reported in the study entitled “Effect of Patients' Education on Their Performance and Outcomes Regarding Lumbar Disk Herniation” that, all patients had unsatisfactory total knowledge pre-program compared to, most patients had a satisfactory level of knowledge immediately post-program implementation.

This may be related to the knowledge that acquired from the provided educational program about anatomy and physiology of vertebral column, disc herniation disease, pain management, discectomy, preoperative, postoperative care and discharge instructions which supported by illustrative colored booklet. This finding may be related to lack of exposure to such information pre-program results in unsatisfactory knowledge. However, the patient's knowledge was satisfactory immediately post-program implementation. This finding may be due to practical, comprehensive, concise, clear programs, active learning methods, explicit learning materials & increased patient motivation.

Moreover, Ibrahim & Atya, (2023)⁴⁸, who reported that, there was statistically significant differences between the study and control groups in all items of knowledge. It was attributed to the effectiveness of theoretical sessions designed in the training program, the clear demonstration, and the illustrative handout.

Regarding Patient's self-care practices, present study revealed that, most of patients in the study group had satisfactory level regarding total self-care practices post implementation of discharge plan while, majority of patients in the control group had unsatisfactory level. This finding may be related to lack of exposure to such practice and inappropriate performance of such practice pre-program implementation, which results in unsatisfactory practice. The patient's practice was satisfactory immediately post-program implementation; this may be due to effective, clear demonstration and re-demonstration of practice about lumbar disc herniation.

This finding is supported by **Abd Allah et al., (2021)¹³**, who reported in the study entitled "Daily Living Activities Disability Among Elderly Patients with Lumbar Herniated Disc", that, total proper body mechanics practices among all studied patients were inadequate pre-program. The post-program phase demonstrated a statistical significant improvements in all proper bod mechanics practices. also, there was a statistically significant difference in total mean score of proper body mechanics practices of the studied patients pre and post the training program.

Owing to relation between total knowledge and educational level and occupation, the current study findings showed that there was a high statistically significant relation between total knowledge and education level and occupation of the study group patients post implementation of discharge plan. In agreement with **Ebrahim et al, (2022)⁴⁹**, in the study entitled "Activities of Daily Living among Adult Patients with Lumbar Disc" who reported that, there was a statistically significant relation between patient's knowledge and level of education and job .

Owing to correlation between total knowledge score and total self-care practices, The present study revealed that, there was a positive correlation coefficient between total patients' knowledge and total self-care practices post implementation of discharge plan. These findings were in agreement with **Abd Allah et al., (2021)¹³**, who reported that, there was a statistically significant positive correlation between proper body mechanics knowledge and practices (the higher proper body mechanics knowledge score, the higher practices score).

Conclusion:

On the light of the present study results, can concluded that, the implementation of discharge planning regarding LDH surgery had a statistically significant effect in improving self-care practices and knowledge of patients in the study group compared to the control group. There was statistically significant positive correlation between total self-care practices, and total knowledge among the patients in the study group post implementation of discharge plan, which supported the stated hypothesis.

Recommendations:

In line with the findings of the study, the following recommendations were derived and suggested:

- 1- Further research is needed to assess the effects of preoperative education on surgical outcomes and self-care activities in patients undergoing herniated lumbar disc surgery.
- 2- Replication of the study using a larger probability sample from different geographical regions for generalization of results.
- 3- Similar studies are needed to assess the long-term effects of such discharge plans.

Table 1: Frequency and Percentage Distribution of Demographic Characteristics of The Study Subjects (n=60).

Demographic characteristics	Study group (n=30)		Control group (n=30)		Chi-square	
	No.	%	No.	%	X ²	P-Value
Age (years)					1.779	0.619
< 50 years	21	70.0	23	76.7		

≥ 50 years	9	30.0	7	23.3		
Mean ± S.D	42.2 ± 10.3		41.03 ± 10.1		T= 0.412	0.684
Gender					0.693	0.405
Male	19	63.3	22	73.3		
Female	11	36.7	8	26.7		
Marital status (Married)	30	100.0	30	100.0	0	0
Education level					0.300	0.584
Educated	21	70.0	19	63.3		
Not educated	9	30.0	11	36.7		
Occupation					0.800	0.371
Working	21	70.0	24	80.0		
Not Working	9	30.0	6	20.0		
Work nature	(n=21)		(n=24)		0.267	0.606
Hard work	14	66.7	16	66.7		
Not hard work	7	33.3	8	33.3		
Occupational change	(n=21)		(n=24)		1.002	0.317
Yes	16	76.2	21	87.5		
No	5	23.8	3	12.5		
Place of residence					1.270	0.260
Rural	19	63.3	23	76.7		
Urban	11	36.7	7	23.3		

X²=chi-square test. No Statistically significant at p >0.05.

Table 2: Frequency and Percentage Distribution of Patient's Health History in The Study and Control Groups (n=60).

Health history	Study group (n=30)		Control group (n=30)		Chi-square		
	No.	%	No.	%	X ²	P-Value	
Past health history							
Previous MRI on the lumbar spine							
Yes	20	66.7	18	60.0	0.287	0.592	
No	10	33.3	12	40.0			
Previous operations							
Yes	5	16.7	3	10.0	0.706	0.353	
No	25	83.3	27	90.0			
Type of previous operations							
		(n=5)		(n=3)		8.077	0.152
Caesarean section	4	80.0	1	33.3			
Septoplasty	1	20.0	0	0.0			
Appendectomy	0	0.0	2	66.7			
Present health history							
Chronic diseases							
Yes	2	6.7	5	16.7	0.424	0.212	
No	28	93.3	25	83.3			
Type of chronic diseases							
		(n=2)		(n=5)		2.018	0.365
Hypertension	1	50.0	3	60.0			
Diabetes	1	50.0	1	20.0			
Heart disease	0	0.0	1	20.0			
Smoking							
Currently	7	23.3	9	30.0	2.250	0.325	
Previously	2	6.7	0	0.0			
No	21	70.0	21	70.0			
Duration of suffering from a herniated disc.							
1-<5 years	22	73.4	17	56.7	1.863	0.394	
5-< 10 years	7	23.3	11	36.7			
≥ 10 years	1	3.3	2	6.7			
Mean ± S.D	2.97 ± 2.52		4.03 ± 3.17		T=1.404	0.171	
*Reasons for herniated disc							
Aging (tearing with use)	17	56.7	14	46.7	1.863	0.400	
The job	12	40.0	19	63.3			
Family history	7	23.3	9	30.0			
The fall	4	13.3	0	0.0			
Incorrect rolling and twisting	30	100.0	22	73.3			
Smoking	8	20.0	2	6.7			
Obesity	14	46.7	16	53.3			
Carrying heavy weights	24	80.0	30	100.0			

(*) Responses not mutually exclusive.

No Statistically significant at p >0.05.

Table3: Frequency and Percentage Distribution of Patient's Health History in The Study and Control Groups (n=60).

Health history	Study group (n=30)		Control group (n=30)		Chi-square	
	No.	%	No.	%	X ²	P-Value
Rating health at the moment						
Almost the same	4	13.3	8	26.7	1.667	0.197
Worse than before	26	86.7	22	73.3		
Weight (kg)					0.393	0.822

70-<80	8	26.7	8	26.7		
80-<90	7	23.3	9	30.0		
≥ 90	15	50.0	13	43.3		
Mean ± S.D	86.4 ± 9.30		87.20 ± 11.2		T=0.281	0.781
Height: (cm)					3.140	0.208
150-<160	15	50.0	16	53.3		
160-<170	13	43.3	12	40.0		
≥ 170	2	6.7	2	6.7		
Mean ± S.D	±		167.2 ± 5.81		T=1.642	0.111
BMI					3.278	0.194
Normal weight	7	23.3	2	6.7		
Weight gain	12	40.0	15	50.0		
Obesity	11	36.7	13	43.3		
Mean ± S.D	29.6 ± 3.80		30.9 ± 4.69		T=1.131	.267
All symptoms associated with lower back pain	30	100.0	30	100.0	0	0
Affected lumbar vertebrae:					3.667	0.066
Third and fourth vertebrae.	4	13.3	0	0.0		
Fourth and fifth lumbar vertebrae	25	83.3	25	83.3		
Fifth lumbar & first sacral vertebrae	1	3.3	5	16.7		
Family history					0.884	0.347
previous suffering of family member from herniated disc.						
Yes	5	16.7	8	26.7		
No	25	83.3	22	73.3		
Preoperative medications						
Didn't receive any medication before surgery	30	100.0	30	100.0	0	0

No Statistically significant at p > 0.05.

Table 4: Distribution of Studied Patients Regarding Total Knowledge Score Among Patients in The Study and Control Groups Pre and Post Implementation of Discharge Plan (n=60).

Items of total knowledge	Study group (n=30)								Control group (n=30)								Chi-square		
	Pre				Post				Pre				Post				(p1)	(p2)	(p3)
	Satisfactory		Unsatisfactory		Satisfactory		Unsatisfactory		Satisfactory		Unsatisfactory		Satisfactory		Unsatisfactory				
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%			
Anatomy and physiology of vertebral column	2	6.7	28	93.3	27	90.0	3	10.0	1	3.3	29	96.7	2	6.7	28	93.3	X ² =0.351 p=0.551	X ² =41.71 P=.000**	X ² =1.000 p=0.694
Disc herniation disease	4	13.3	26	86.7	27	90.0	3	10.0	2	6.7	28	93.3	7	23.3	23	76.3	X ² =.741 p=0.389	X ² =35.30 P=.000**	X ² =1.920 p=0.166
Pain management	3	10.0	27	90.0	28	93.3	2	6.7	2	6.7	28	93.3	4	13.3	26	86.7	X ² =0.351 p=0.554	X ² =48.19 P=.000**	X ² =.741 p=0.389
Discectomy	2	6.7	28	93.3	26	86.7	4	13.3	3	10.0	27	90.0	5	16.7	25	83.3	X ² =0.351 p=0.554	X ² =41.71 P=.000**	X ² =0.577 p=0.448
Preoperative, postoperative care	5	16.7	25	83.3	28	93.3	2	6.7	3	10.0	27	90.0	3	10.0	27	90.0	X ² =.741 p=0.389	X ² =35.62 P=.000**	X ² =1.176 p=0.278
Discharge instructions	5	16.7	25	83.3	26	86.7	4	13.3	3	10.0	27	90.0	4	13.3	26	86.7	X ² =.577 p=0.448	X ² =32.77 P=.000**	X ² =1.000 p=0.500
Total knowledge score	4	13.3	26	86.7	27	90.0	3	10.0	3	10.0	27	90.0	5	16.7	25	83.3	X ² =0.162 p=0.688	X ² =35.30 P=.000**	X ² =0.577 p=0.448

X²: Chi-square p= p-value No statistically significant at p > 0.05.

P₁: p value for comparing between the (Study and Control group) in pre-intervention.

P₃: p value for comparing between the (Control group) in pre and post intervention

** : Highly statistically significant at p ≤ 0.001.

P₂: p value for comparing between the (Study group) in pre and

Table 5: Comparison Between The Study and Control Groups Regarding Total Self-Care Practices Regarding Herniated Lumbar Disc Prolapse at Pre and Post Implementation of Discharge Plan (n=60).

Self-care practices	Study group (n=30)								Control group (n=30)								Chi-square		
	Pre				Post				Pre				Post				(p1)	(p2)	(p3)
	Satisfactory		Unsatisfactory		Satisfactory		Unsatisfactory		Satisfactory		Unsatisfactory		Satisfactory		Unsatisfactory				
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%			
Periodic follow-up	18	60.0	12	40.0	30	100.0	0	0.0	18	60.0	12	40.0	21	70.0	9	30.0	X ² =0.00 p=1.000	X ² =15.00 P=.000**	X ² =0.659 p=0.417
Personal care	4	13.3	26	86.7	28	93.3	2	6.7	4	13.3	26	86.7	5	16.7	25	83.3	X ² =0. p=0.	X ² =38.57 P=.000**	X ² =1.000 p=0.500
Lifting and transporting objects	6	20.0	24	80.0	28	93.3	2	6.7	3	10.0	27	90.0	5	16.7	25	83.3	X ² =0. p=0.	X ² =32.85 P=.000**	X ² =.706 p=0.353
Walking	12	40.0	18	60.0	30	100.0	0	0.0	10	33.3	20	66.7	11	36.7	19	63.3	X ² =0. p=0.	X ² =25.71 P=.000**	X ² =1.000 p=0.500
Getting into a chair	4	13.3	26	86.7	30	100.0	0	0.0	2	6.7	28	93.3	4	13.3	26	86.7	X ² =0. p=0.	X ² =45.88 P=.000**	X ² =.671 p=0.335
Getting out of a chair	4	13.3	26	86.7	30	100.0	0	0.0	3	10.0	27	90.0	4	13.3	26	86.7	X ² =0. p=0.	X ² =45.88 P=.000**	X ² =1.000 p=0.500
Getting into a couch	4	13.3	26	86.7	30	100.0	0	0.0	3	10.0	27	90.0	3	10.0	27	90.0	X ² =0. p=0.	X ² =45.88 P=.000**	X ² =0.000 p=1.000
Sitting in the car	2	6.7	28	93.3	27	90.0	3	10.0	0	0.0	30	100.0	3	10.0	27	90.0	X ² =0. p=0.	X ² =41.71 P=.000**	X ² =.237 p=0.119
Standing	6	20.0	24	80.0	28	93.3	2	6.7	2	6.7	28	93.3	4	13.3	26	86.7	X ² =0. p=0.	X ² =32.85 P=.000**	X ² =.671 p=0.335
Getting into bed	5	16.7	25	83.3	30	100.0	0	0.0	4	13.3	26	86.7	4	13.3	26	86.7	X ² =0. p=0.	X ² =42.85 P=.000**	X ² =0.000 p=1.000
Getting out of bed	6	20.0	24	80.0	30	100.0	0	0.0	3	10.0	27	90.0	3	10.0	27	90.0	X ² =0. p=0.	X ² =40.00 P=.000**	X ² =0.000 p=1.000
Sexuality	4	13.3	26	86.7	28	93.3	2	6.7	2	6.7	28	93.3	4	13.3	26	86.7	X ² =0. p=0.	X ² =38.57 P=.000**	X ² =.671 p=0.335
Social and spiritual life	6	20.0	24	80.0	26	86.7	4	13.3	3	10.0	27	90.0	3	10.0	27	90.0	X ² =0. p=0.	X ² =26.78 P=.000**	X ² =0.000 p=1.000
Travel	7	23.3	23	76.7	27	90.0	3	10.0	4	13.3	26	86.7	4	13.3	26	86.7	X ² =0. p=0.	X ² =27.14 P=.000**	X ² =0.000 p=1.000
Push up exercise	6	20.0	24	80.0	30	100.0	0	0.0	3	10.0	27	90.0	3	10.0	27	90.0	X ² =0. p=0.	X ² =40.00 P=.000**	X ² =0.000 p=1.000
Straight leg raise exercise	5	16.7	25	83.3	28	93.3	2	6.7	3	10.0	27	90.0	5	16.7	25	83.3	X ² =0. p=0.	X ² =35.62 P=.000**	X ² =.706 p=0.353
Sciatic nerve sliding exercise	5	16.7	25	83.3	30	100.0	0	0.0	3	10.0	27	90.0	5	16.7	25	83.3	X ² =0. p=0.	X ² =42.85 P=.000**	X ² =.706 p=0.353
Lumbar-flexion exercise	5	16.7	25	83.3	30	100.0	0	0.0	3	10.0	27	90.0	3	10.0	27	90.0	X ² =0. p=0.	X ² =42.85 P=.000**	X ² =0.000 p=1.000
Seated chair stretch exercise	0	0.0	30	100.0	28	93.3	2	6.7	0	0.0	30	100.0	0	0.0	3	10.0	X ² =0. p=0.	X ² =52.50 P=.000**	X ² =0.000 p=1.000
Back flexion stretch exercise	0	0.0	30	100.0	28	93.3	2	6.7	0	0.0	30	100.0	3	10.0	27	90.0	X ² =0. p=0.	X ² =52.50 P=.000**	X ² =.237 p=0.119
Total self-care practices score	5	16.7	25	83.3	27	90.0	3	10.0	3	10.0	27	90.0	4	13.3	26	86.7	X ² =0. p=0.	X ² =32.41 P=.000**	X ² =1.000 p=0.500
Mean ± S.D	15.03 ± 9.56				61.93±2.8				11.80±6.08				17.3±14.03				t=1.233 p=0.250	t=12.99 P=.000**	t=1.411 p=0.164

X²: Chi-square. t= paired t test. p= p-value. No statistically significant at p > 0.05. **: Highly statistically significant at p ≤ 0.001.
P₁: p value for comparing between the (Study and Control group) in pre-intervention. P₂: p value for comparing between the (Study group) in pre and post intervention.
P₃: p value for comparing between the (Control group) in pre and post intervention.

Table 6 : Correlation Between Total Patients' Knowledge and Self-Care Practices Among The Study Group at Pre and Post Implementation of Discharge Plan (n=60).

Variables	Total knowledge of the study group				Total knowledge of the control group			
	Pre		Post		Pre		Post	
	r	P- value	r	P- value	r	P- value	r	P- value
Total self-care practices of the study group	0.719	0.000**	0.579	0.000**				
Total self-care practices of the control group					0.462	0.001**	0.473	0.001**

r= Correlation coefficients test. (-) = negative correlation. * Significant correlation at p < 0.05. **Highly significant correlation at p < 0.001.

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