

Discharge Plan: It's Effect on Low Back Pain Disability and Activities of Daily Living for Patients 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 treatment efficacy, enhances activities of daily living (ADLs), and successfully prevents recurrence. **Aim of the study:** Was to evaluate the effect of implementing discharge plan on low back pain disability and activities of daily living for patients undergoing herniated lumbar disc surgery. **Subjects and Methods: Research design:** A quasi experimental research design was carried out in this study. **Setting:** The study was conducted at neurosurgery department at New Surgery Hospital and outpatient clinic at Zagazig University Hospital. **Subjects:** A purposive sample of sixty adult patients were selected from the mentioned setting. **Tool of data collection:** Three tools were used for collecting data: Patients' Interviewing Questionnaire, Barthel Index Scale of ADLs and Low Back Pain (LBP) Disability Questionnaire. **Results:** Most (90.0%) of patients among study group were independent post implementation of discharge plan regarding total ability to perform ADLs compared to, half (50.0%) of patients among control group post implementation of discharge plan. Less than two thirds (63.3%) of patients among the study group had no disability post implementation of discharge plan regarding total LBP disability compared to, half (50.0%) of patients among the control group were completely disabled. **Conclusion:** Implementation of discharge planning regarding LDH surgery had a statistically significant effect in improving level of LBP, disability level, and ability to perform ADLs of patients in the study group compared to the control group. There was statistically significant positive correlation between total ability to perform ADLs and LBP disability among the patients in the study group post implementation of discharge plan, which supported the stated hypothesis. **Recommendations:** Replication of the study using a larger probability sample from different geographical regions for generalization of results. In addition, similar studies are needed to assess the long-term effects of such discharge plans.

Key words: Activities of Daily Living, Discharge plan, Herniated Lumbar Disc Surgery and Low Back Pain Disability.

Introduction

One of the most frequent causes of LBP is LDH ⁽¹⁾. Because of its high frequency and associated drawbacks, including discomfort, diminished function and productivity, psychological stress, difficulties carrying out everyday tasks, and detrimental effects on quality of life (QoL), LBP is a significant public health concern ⁽²⁾. It affects an estimated 600 million individuals worldwide and is the primary cause of disability. In terms of economics, LBP costs the US economy more than \$100 billion annually. With the

population aging quickly, it will become a problem for many developed countries ⁽³⁾.

With a male to female ratio of 2:1, the incidence of a herniated disc is 5 to 20 instances per 1000 individuals annually and is most frequent in those in their third to fifth decade of life. About 1-3 percent of patients are thought to have a lumbar spine herniated disc that causes symptoms ⁽⁴⁾. In clinical orthopedics, lumbar disc herniation is a prevalent and frequent condition. Its etiology involves the herniation of the nucleus pulposus, which compresses the

spinal cord or nerve and results in a number of syndromes. This is caused by the degeneration of the intervertebral disc and the rupture of the annulus fibrosus⁽⁵⁾.

Daily activities are restricted by low back pain. Consequently, individuals with LBP related to LDH would benefit from the pain management training and counseling services offered by medical professionals⁽⁶⁾. ADLs, or activities that support independent living, are a variety of functional activities that might be as simple as walking or bending or as complicated as cooking, taking a shower, or putting on clothes⁽⁷⁾. Following surgery, it is crucial for patients to be independent in their everyday activities⁽⁸⁾.

Through efficient education, nurses can significantly improve the standard of care provided to orthopedic patients⁽⁹⁾. Before or after lumbar surgery, the discharge plan usually consists of patient education and information, as well as a variety of exercises for mobility, stability, or motor control. It also suggests that the patient follow certain guidelines for bending, sitting, and lifting for a few weeks following lumbar surgery⁽¹⁰⁾.

Significance of the study:

One of the most common procedures performed worldwide these days is to repair a herniated disc⁽¹¹⁾. The most prevalent spine condition that needs surgery is LDH⁽¹²⁾. Prolonged lumbar pain and inactivity lower QoL and limit social and ADLs. As a result, the patients must learn to manage their discomfort in order to carry out their normal activities⁽¹³⁾. After treatment, patients with lumbar disc prolapse may experience numerous consequences that could result in disability from poor self-care practices. For lumbar disc prolapse, post-operative self-management along with patient education regarding continuing physical activity as tolerated has been recommended for lumbar disc prolapse⁽¹⁴⁾.

Operational Definitions:

A discharge plan is created specifically for each patient before they have permission to leave the hospital and return home. It is the vital link between the patient's hospital care and the post-discharge support given. The term "discharge plan" in this study refers to a set of instructions created by the researcher for informing patients concerning surgery for a herniated lumbar disc at the time of discharge.

Aim of the study:

The aim of the study was: To evaluate the effect of implementing discharge plan on LBP disability and activities of daily living for patients undergoing herniated lumbar disc surgery. **Through achieving the following objectives, the aim was accomplished:**

- Assess pain severity level for patients undergoing herniated lumbar disc surgery.
- Assess ability to perform ADLs and disability level for patients undergoing herniated lumbar disc surgery.
- Design and implement discharge plan regarding LBP disability and ADLs for patients undergoing herniated lumbar disc surgery.

Research Hypothesis:

- After implementation of discharge plan, patients in the study group will have a lower mean score for LBP disability than patients in the control group.
- After implementation of discharge plan, the study group's patients' mean ADL score will be greater than the control groups.
- There will be appositve correlation between ADLs and LBP disability post implementation of discharge plan.

Subjects and Methods:

Research design:

A quasi-experimental research design (study and control pre and post) was carried out in this study.

Setting:

Neurosurgery department at New Surgery Hospital and outpatient clinic at Zagazig University Hospital, Zagazig Governate, Egypt. Neurosurgery department are located on the six floor of New Surgery Hospital. The department consists of two units one for male and other for female, each unit consists of three rooms and each room have six beds. The outpatient clinic of neurology is located on the six floor of the outpatient clinics. It has five rooms: one for new cases, one for epileptic patient, one for patient follow up and two lecture halls.

Subjects:

A purposive sample of 60 patients with herniated lumbar disc was recruited for this study and alternatively divided into two equal groups, 30 for each group (study and control).

Inclusion Criteria: Patients with age between 18-60 years, both sex, free from any cognitive or hearing disorders and able to comprehend instructions, accept to participate in the study and radiological diagnosis of disc herniation by Magnetic Resonance Imaging.

Exclusion Criteria: Patients with chronic disease as liver cirrhosis or cancer were excluded from this study, patients previously received any related educational program and patients with previous lumbar surgery with poor surgical outcome.

Tools of data collection:

Three tools were used to collect necessary data.

Tool I: Patients' interviewing questionnaire. It was developed by the researcher based on review of relevant recent literature, it was translated into Arabic, validity and reliability was tested. It included two 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 drugs⁽¹⁵⁾.

Tool II: Barthel Index Scale of Activities of Daily Living: It is used to assess the patients' ability to perform ADLs independently. The scale comprises nine items of daily living activities (feeding, bathing, dressing, continent bowels, continent bladder, toilet use, transfers (bed to chair and back), mobility (on level surfaces, 45-meter walk), and stairs (up and down). The scale had total scores of 19, with higher score indicating better performance of ADLs in patients⁽¹⁶⁾.

Barthel Index Scale scoring system:

The scores responses for every item were as follows:

Completely dependent scored (0), Need assistant scored (1), and Independent scored (2). The total scores of independency level ranged from 0-19, the higher scores reflect the higher independency level. It categorized as the following: (0-6) was considered "completely dependent", (7-13) was considered "need assistance" and (14-19) was considered "independent".

Tool III: Low Back Pain Disability Questionnaire:

It is used by the researcher to evaluate disability in patients with LBP. The test was considered the "criterion standard" for low back functional outcome assessment. The Oswestry Disability Index (ODI) consists of 10 subgroups related to disabilities and limitations of activities of daily living due to LBP⁽¹³⁾.

The total scores of disability level ranged from 0-50. Each item consists of six statements which are scored from 0

to 5. With 0 indicating the least disability and 5 the greatest. It was categorized as the following: (0-4) no disability, (5-14) Mild disability, (15-24) moderate disability, (25-34) severe disability and (35-50) completely disabled.

Content validity & Reliability:

Testing validity: Five juries of experts (three assistant professors of medical surgical nursing, one professor of medical staff, and one professor of Medical surgical nursing) evaluated the instruments for comprehension, applicability, comprehensiveness, clarity, and comprehensiveness. 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.

Testing reliability: The reliability of tools was tested by the internal consistency method. Cronbach's alpha reliability coefficient was found to be 0.801 and 0.793 respectively for patient's knowledge assessment questionnaire and patient self-care practices. Reliability testing was conducted before data collection began.

Field work:

Six months of data collecting were completed between September 2022 and the end of February 2023. Over the course of the study, three days a week (Saturday, Sunday, and Tuesday) were used for individual interviews with each patient, taking place in the morning and afternoon shifts. In order to address any concerns and correct any misinformation, the researcher provided the patient with her phone number and made contact with them via WhatsApp and other social media.

The research was carried out in the following five stages:

Preparatory phase:

Review of relevant literature (medical and nursing textbooks, journals,

internet resources on lumbar disc herniation surgery, self-care practices) to deliver data and 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. After meeting with the patients who matched the eligibility requirements, the researcher began to assemble the sample, outlining the goals of the study, its protocols, and the subjects' rights before extending an invitation to take part. The individuals who made up the group were allocated to either the control group or the study. Additionally, the researcher described the duties that each patient or member of the control group would be asked to perform in order to take part in the study. Individual interviews were conducted with those who provided their consent, utilizing the data collecting form. The data collected helped the researcher in creating 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 data and relevant literature. The teaching approach included synchronous and asynchronous learning, task-based learning, group discussions, microteaching, and demonstration and re-demonstration. Power slide presentations, instructional videos on particular exercises, and a fully colored booklet produced in Arabic by the researcher and given to patients as a resource and guide to assist them comprehend every facet of herniated lumbar disc surgery were among the other teaching aids.

Implementation phase:

Group (I) Control group : This group adhered to the standard hospital care guidelines provided by the surgical

team, which include standard preoperative, postoperative, and pharmaceutical care.

Group (II) study group: Sessions providing as a discharge plan were given to the study group.

Ten sessions (one for orientation, four for theoretical terms, and five for practice) were dedicated to implementing the research group's discharge plan. The duration of each session was 20–45 minutes. Arabic was used to write and deliver the booklet. An orientation on the discharge plan and its purpose was given at the start of the first session. Every session started with a recap of the previous one's lessons and its goals, keeping in mind that patients should be educated in simple language appropriate for their level. In order to improve learning, training sessions employed reinforcement and motivation.

By the completion of the sessions, the booklets were given to the patients under study. The theoretical sessions was covered in group discussions with the use of power point, books, and instructional videos. The demonstration and re demonstration of the demonstration served as the format for the practical session.

The substance of the courses addressed both theoretical and practical aspects. The first three sessions, which were theoretical in nature, started at an outpatient clinic (preoperative admission). Orientation regarding the discharge plan was covered in the first session. The anatomy and physiology of the vertebral column and disc herniation disease, including its definition, most vulnerable groups, causes, symptoms, complications, and treatment options, were the main topics of the second and third sessions (theoretical sessions).

Theoretical sessions 4 and 5 started following admission (preoperative). The fourth session covered preoperative

assessment, different types of surgery, postoperative complications, and indications for surgery. The fifth session included post-operative instructions for daily living activities, guidelines for reducing low back pain and disability, the ideal sleeping position following surgery, and certain post-operative health behaviors.

The following self-care practices and discharge instructions were covered in five practical sessions:

Following admission (preoperative), Session 6 (practical session) began. Practice for push-ups and straight leg raises was conducted. After admittance, the seventh session, which was practical in nature, covered lumbar flexion and sciatic nerve sliding exercises. Following admission, the eighth practical session (preoperative) concentrated on back flexion and seated chair stretches.

Beginning with the preoperative admission, Session 9 (the practical session) was devoted to teach patients the correct techniques for pushing and pulling heavy items as well as for lifting, lowering, and transporting them. The purpose of Session 10, which was a practical session that began immediately following the patient's admission (preoperative), was to instruct the patients on correct techniques for sitting, standing, getting into and out of a bed, a car, and a chair.

Every training session was observed and patients received feedback. Three days a week, the researcher was on hand to address any concerns or queries from the patients.

The patient performed the exercises multiple times until they executed the method accurately and successfully, as demonstrated by the researcher. Three times a day, in the morning, afternoon, and evening, the study group completed exercises that included three duplicates of each activity. Patients were given and

advised to perform at-home exercises for a month at the time of discharge.

Patients documented the amount of time they spent exercising each day on a follow-up schedule, and participants were encouraged to complete their assigned exercises and self-care practices independently at home. They were provided this schedule at the outset of the discharge plan application process, along with instructions on how to complete it.

The researcher videotaped 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 one. The researcher phoned 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 on LBP disability and ADLs for patients undergoing herniated lumbar disc surgery.

Pilot study:

Six patients (10%) of the overall study population participated in a pilot study to determine if the tools are time-consuming, practical, comprehensible, feasible, and clear. In accordance with the findings of the pilot study, necessary adjustments were made. Later, pilot participants were taken out of the sample for the primary study.

Administrative and ethical consideration:

The dean of the nursing faculty granted the required approvals, which were then given to the general director of Zagazig University Hospitals. After outlining the study's objectives,

permission was then granted by the head of the aforementioned setting to proceed with the study.

Each possible participant was told at the first interview about the nature, objectives, and benefits of the study, as well as that participation is entirely optional. All data was coded to ensure the subjects' confidentiality and anonymity. The study subject was not at risk during the application of the research, the researcher stated, and the data and information gathered would be kept private and utilized solely to further the study's objectives and to better the subjects' health.

In addition, each participant gave the informed consent after being fully told about the study's purpose and procedures and before being included in the study. They were advised of their right to decline participation in the study at any moment, without explanation or repercussions. **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 (χ^2) 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:

Table 1: Displays that, of the patients aged < 50 years, more than two thirds (70.0%) in the study group and more than three quarters (76.7%) in the control group had a mean \pm SD of 42.2 ± 10.3 and 41.03 ± 10.1 , respectively. Of these patients, less than two thirds (63.3%) in the study group and less than three quarters (73.3%) in the control group were male. In terms of the nature of work, over two thirds (66.7%) of the patients in both groups worked hard. Additionally, the majority of patients (87.5%) in the control group and more than three quarters (76.2%) of patients in the study group had changed occupations.

Table 2: Shows that, with respect to a total ability to perform activities of daily living, most of patients (90.0%) in the study group and half (50.0%) of patients in the control group were independent after the discharge plan was implemented (mean \pm S.D.: 17.93 ± 1.7 , 14.3 ± 2.06 , respectively). Ultimately, the research group's ability to execute activities of daily living showed high statistically significant differences before and after the discharge plan was implemented ($T=7.679$ at p . value < 0.000).

Table 3: Demonstrates that, less than two thirds (63.3%) of the patients in the study group had no disability after the discharge plan was implemented, with a mean \pm S.D. 14.13 ± 4.3 . In contrast, half (50.0%) of the patients in the control group had complete disability, with a mean \pm S.D. 34.06 ± 6.2 after the discharge plan was implemented. Lastly, the study group's total low back pain disability showed a high statistically significant difference before and after the discharge plan was implemented ($T=24.94$ at p . value < 0.000).

Table 4: Describes that, there was a statistical significant relation between levels of total ability to perform activities of daily living and gender and education level of the study group patients ($p =$

0.042 & 0.040 respectively) post implementation of discharge plan. On the other hand, there was no statistically significant relation between levels of total ability to perform activities of daily living and patient's age, occupation and place of residence of the study group patients ($p = 0.130$, 0.448 & 0.702 respectively) post implementation of discharge plan.

Table 5: Demonstrates that, there was a statistical significant relation between levels of total low back pain disability and age (years) of the study group patients ($p = 0.040$) post implementation of discharge plan. On the other hand, there was no statistical significant relation between levels of total low back pain disability and demographic characteristics regarding gender, education level, occupation and place of residence of the study group patients ($p = 0.266$, 0.935 , 0.239 & 0.696 respectively) post implementation of discharge plan.

Table 6:

Reveals that, there was a negative correlation coefficient between Total ability to perform activities of daily living and total low back pain disability of the study group patients ($r = -0.369$ at $p < 0.001$) post implementation of discharge plan. Also, there was a negative correlation coefficient between Total ability to perform activities of daily living and total low back pain disability of the study group patients ($r = -0.604$ at $p < 0.000$) 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 finding may be explained by the higher prevalence of lumbar disc herniation and the frequent exposure of younger adults who

comprise the working-age population to stressors in their lives.

The finding of the present study in the same context with Ahmed et al⁽¹⁴⁾ in the study entitled "Self-Care Practices of Patients with Lumbar Disc Prolapse in The Postoperative Period", stated that, less than one-third of studied patients were at age 30 to less than 40 years old and the same proportion was from 40 to less than 50 years old. But on the other hand, Abbady et al⁽¹⁷⁾ 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⁽¹⁸⁾ 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⁽¹⁹⁾ 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⁽²⁰⁾ 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 study found that all patients in both groups were married. Most of patients in the study group and more than

three quarters of patients in the control group were married, according to Zarei et al. (11) in their study "The Effect of Multimedia-Based Nursing Visit on Preoperative Anxiety and Vital Signs in Patients Undergoing Lumbar Disc Herniation Surgery."

In terms of the nature of work, the current study found that over two thirds of the patients in both groups worked hard. This could be a result of the nature of the job, which puts mechanical strain on the back and raises the possibility of developing a herniated lumbar disc. In agreement with Moaven et al⁽²¹⁾ 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⁽²²⁾ who reported in the study entitled "Effect of Discharge Plan on Satisfaction of Patients with Lumbar Disc Herniation Surgery" that, over one quarter of the participants enrolled in the study had significant 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⁽²³⁾, 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 Hablass et al⁽²⁴⁾, 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.

Regarding place of residence, the result of the present study revealed that, less than two thirds of patients in the study group and more than three

quarters of patients in the control group were from rural areas. This finding is supported by Abd-Elzaher et al ⁽²⁵⁾ in the study entitled "Coping Strategies among Adult Patients with Lumbar 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 ⁽²⁶⁾ 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 ability to perform activities of daily Living, the current study revealed that, there were high statistically significant differences between study and control groups regarding ability to perform activities of daily living pre and post implementation of discharge plan. The findings of this study was in line with the result of Guo etal ⁽³⁸⁾ who reported in the study entitled "Rehabilitation Nursing For Patient Rehabilitation After Minimally Invasive Spine Surgery" that , before nursing intervention, there was no significant difference in the barthel index score between the two groups. After nursing intervention, the Barthel index scores of both groups were substantially higher than those before nursing intervention, significantly higher score was noted in the observation group than in the control group.

Moreover, Quan ⁽⁵⁾ who reported in the study about "A study on postoperative nursing of minimally invasive surgery for lumbar disc herniation" that, the Barthel Index of patients in the two groups after nursing was improved, compared with that before nursing, but the improvement of the

Barthel index for trial group was significantly higher than for control group, and the difference between the two groups was statistically significant.

The current study reveals that, most of patients in the study group compared to, half of patients in the control group were independent post implementation of discharge plan concerning total ability to perform activities of daily living with mean \pm S.D (17.93 \pm 1.7, 14.3 \pm 2.06 respectively). In the same line with Weheida etal ⁽⁹⁾ who reported that nearly three quarter of the study groups patients need assistance with activity of daily living preprogram while all the study group became independent post program implementation.

Regarding patient's disability level assessment, the present study revealed that, less than two thirds of patients among the study group had no disability post intervention with mean \pm S.D 14.13 \pm 4.3 compared to, half of patients among the control group were completely disabled with mean \pm S.D 34.06 \pm 6.2 post intervention, half of patients in the study group were completely disabled and two fifths had severe disability pre implementation of discharge plan , which both decline to no one of patients post implementation of discharge plan. There was a high statistically significant difference between the study group regarding total low back pain disability pre and post implementation of discharge plan.

These findings were in agreement with Hemed etal ⁽³⁹⁾ who reported in the study entitled "Effect of Educational Program on Nurses' Performance Regarding Body Mechanics" that, regarding to functional disability level, more than two fifths of the studied nurses had moderate disability preprogram phase which, decline to more than one fifth post program phase and to less than one fifth in the follow up phase. There was a highly statistically significant difference between pre/post and

pre/follow up program phase as regard to total score for functional disability level.

Furthermore, El-seadi etal ⁽⁴⁰⁾ who reported that, regarding to the control group, there was no statistical significant difference regarding levels of (ODI) at the 2nd and 3rd week post routine hospital care. Comparing to, the study group that there was a high statistically significant improvement regarding levels of (ODI) at the 2nd and 3rd week post protocol of nursing care. This may be attributed to the instructions and guidelines about exercise program in the rehabilitation period that was directed to the study group patients by the researcher, proper movement and body mechanics that should be followed to facilitate sitting, standing, walking, sleeping and social life.

Owing to relation between demographic characteristics of the study group and their total ability to perform activities of daily living, the current study findings showed that, there was no statistically significant relation between levels of total ability to perform activities of daily living and patient's age and occupation of the study group patients post implementation of discharge plan. In the same context with Mohammed and Abo El-Fadl ⁽¹⁶⁾ who reported that, there were no statistically significant relation between barthel index of patients and their age and occupation pre- and post-program implementation. These results may be related to the pain sensation has the effect on the ability of patients to perform their daily activities.

Owing to relation between demographic characteristics of the study group and total low back pain disability, the current study findings showed that, there was no statistical significant relation between levels of total low back pain disability and demographic characteristics regarding gender, education level, occupation and place of residence of the study group patients post implementation of discharge plan. In

agreement with Abd Elwahhab etal ⁽⁴¹⁾ who that, there was no relation between socio-demographic characteristics and total score of disability.

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 level of pain, disability level, and ability to perform ADLs of patients in the study group compared to, the control group. There was statistically significant positive correlation between total ability to perform ADL and LBP disability 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:

- Providing copies of the discharge plan guide at the neurosurgery department and outpatient clinic to be readily available for all patients planned to undergo herniated lumbar disc surgery and should be updated periodically.
- Exercises and proper self-care practices should be recommended post discharge for patients undergoing herniated lumbar disc surgery.
- Posters and simple illustrations about self-care practices for patients undergoing herniated lumbar disc surgery should be available at all neurosurgery departments and outpatient clinics.

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: Comparison between the study and control groups regarding total ability to perform activities of daily living pre and post implementation of discharge plan (n=60).

Items of activities of daily living	Study group (n=30)				Control group (n=30)				(p ₁)	(p ₂)	(p ₃)
	Pre		Post		Pre		Post				
	No.	%	No.	%	No.	%	No.	%			
Completely dependent (0- 6)	3	10.0	0	0.0	2	6.7	0	0.0	X ² =.232 p=0.890	X ² =11.82 P=.003**	X ² =3.10 4 p=0.212
Need assistance (7-13)	12	40.0	3	10.0	16	53.3	15	50.0			
Independent (14-19)	15	50.0	27	90.0	12	40.0	15	50.0			
Mean ± S.D	13.07±2.9		17.93±1.7		13.43±2.7		14.3±2.06		T=1.650 P=0.110	T=7.679 P=.000**	T=2.611 P=0.079

X²: Chi-square 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 3: Comparison between the study and control groups regarding total low back pain disability pre and post implementation of discharge plan (n=60).

Items of low back pain disability	Study group (n=30)				Control group (n=30)				(p ₁)	(p ₂)	(p ₃)
	Pre		Post		Pre		Post				
	No.	%	No.	%	No.	%	No.	%			
No disability (0 – 4)	0	0.0	19	63.3	0	0.0	0	0.0	X ² =0.65 5 p=0.721	X ² =54.00 P=.000**	X ² =4.571 p=0.102
Mild disability (5 - 14)	0	0.0	8	26.7	0	0.0	0	0.0			
Moderate disability (15-24)	3	10.0	3	10.0	2	6.7	4	13.3			
Severe disability (25 - 34)	12	40.0	0	0.0	10	33.3	11	36.7			
Completely disabled (35-50)	15	50.0	0	0.0	18	60.0	15	50.0			
Mean ± S.D	34.7±6.4		14.13±4.3		35.53±5.5		34.06±6.2		T=1.705 P=0.101	T=24.94 P=.000**	T=2.052 P=0.097

X²: Chi-square 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 4: Relation between demographic characteristics of the study group and their total ability to perform activities of daily living at pre and post implementation of discharge plan (n=30).

Demographic characteristics	Levels of total ability to perform activities of daily living at pre-intervention						X ²	P-Value	Levels of total ability to perform activities of daily living at post-intervention					
	Completely dependent (n=3)		Need assistance (n=12)		Independent (n=15)				Need assistance (n=3)		Independent (n=27)		X ²	P-Value
	No.	%	No.	%	No.	%			No.	%	No.	%		
Age (years)														
20- < 50	2	66.7	8	66.7	11	73.3	9.316	0.157	3	100.0	18	66.7	5.641	0.130
≥ 50	1	33.3	4	33.3	4	26.7			0	0.0	9	33.3		
Gender														
Male	2	66.7	6	50.0	11	73.3	1.579	0.454	0	0.0	19	70.4	6.28	0.042*
Female	1	33.3	6	50.0	4	26.7			3	100.0	8	29.6	8	
Education level														
Educated	3	100.0	7	58.3	11	73.3	2.143	0.343	0	0.0	21	77.8	7.00	0.040*
Not educated	0	0.0	5	41.7	4	26.7			3	100.0	6	22.2	0	
Occupation														
Working	2	66.7	7	58.3	12	80.0	1.508	0.470	2	66.7	12	44.4	0.58	0.448
Not Working	1	33.3	5	41.7	3	20.0			1	33.3	15	55.6	6	
Place of residence														

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Rural	3	100.0	8	66.7	8	53.3	2.440	0.295	2	66.7	17	63.0	1.00	0.702
Urban	0	0.0	4	33.3	7	46.7			1	33.3	10	37.0	0	

X²: Chi Square Test. No significant at p >0.05. (*) Statistically significant at p <0.05. (**) Highly significant at p < 0.001.

Table 5: Relation between demographic characteristics of the study group and their total low back pain disability at pre and post implementation of discharge plan (n=30).

Demographic characteristics	Levels of total low back pain disability at pre- intervention						X ²	P- Value	Levels of total low back pain disability at post- intervention						X ²	P- Value
	Moderate disability (n=3)		Severe disability (n=12)		Completely disabled (n=15)				No disability (n=19)		Mild disability (n=8)		Moderate disability (n=3)			
	No.	%	No.	%	No.	%			No.	%	No.	%	No.	%		
Age (years)																
20- < 50	3	100.0	9	75.0	9	60.0	9.23	.043*	13	68.4	6	75.0	2	66.7	10.40	.040*
≥ 50	0	0.0	3	25.0	6	40.0			6	31.6	2	25.0	1	33.3		
Gender																
Male	3	100.0	10	83.3	6	40.0	7.321	.026*	14	73.7	4	50.0	1	33.3	2.652	.266
Female	0	0.0	2	16.7	9	60.0			5	26.3	4	50.0	2	66.7		
Education level																
Educated	2	66.7	9	75.0	10	66.7	0.238	.888	13	68.4	6	75.0	2	66.7	0.134	.935
Not educated	1	33.3	3	25.0	5	33.3			6	31.6	2	25.0	1	33.3		
Occupation																
Working	3	100.0	10	83.3	8	53.3	4.286	.117	15	78.9	5	62.5	1	33.3	2.859	.239
Not Working	0	0.0	2	16.7	7	46.7			4	21.1	3	37.5	2	66.7		
Place of residence																
Rural	1	33.3	7	58.3	11	73.3	1.938	0.380	11	57.9	6	75.0	2	66.7	.725	.696
Urban	2	66.7	5	41.7	4	26.7			8	42.1	2	25.0	1	33.3		

X²: Chi Square Test. No significant at p >0.05. (*) Statistically significant at p <0.05. (**) Highly significant at p < 0.001.

Table 6: Correlation between total ability to perform ADLs and total LBP disability among the study and control groups at pre and post implementation of discharge plan (n=60).

Variables	Total ability to perform ADLs of the study group				Total ability to perform ADLs of the control group			
	Pre		Post		Pre		Post	
	r	P- value	r	P- value	r	P- value	r	P- value
Total LBP disability of the study group	-0.843	0.000**	-0.369	0.001**				
Total LBP disability of the control group					-0.764	0.000**	-0.604	0.000**

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