

Coping Strategies among Adult Patients with Lumber Disc Herniation

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Abstract

Background: Coping strategies are essential for patients with Lumber Disc Herniation (LDH) which improve performance of daily living activity and help in pain mitigation. **Aim of study:** To assess coping strategies among adult patients with LDH. **Research design:** A descriptive design was utilized in this study. **Setting:** This study was conducted at Neuro-Surgery Outpatient Clinic of Benha University Hospital. **Sample:** A Convenient sample was used which included 151 adult patients with LDH. **Tools of data collection:** Four tools were used **I):** A structured interviewing questionnaires to assess studied patients socio-demographic characteristics, medical & family history and knowledge regarding LDH and coping strategies. **II)** The visual analog scale to assess pain intensity in studied patients with LDH. **III)** Coping strategy Questionnaires (CSQ) to assess coping strategies among studied patients with LDH. **IV)** Barthel Index of activity of daily living to assess dependency level of daily living activities in studied patients with LDH. **Results:** 35.1% of the studied patients aged from 35 to less than 45years, 97.4% of them had low back pain, 64.9%, affected in the L4&L5 vertebrae, 15.2% of the studied patients had good total knowledge level about LDH. 64.9% of the studied patients had moderate pain which affect duties performance, 76.8% of studied patients had independent level regarding activities of daily living and 64.9% of studied patients had moderate coping level regarding LDH. **Conclusion:** There was a highly statistically significant relation between level of coping of the studied patients and their dependency level in performing activities of daily of living. **Recommendation:** Develop and implement health education program to improve adult patients knowledge and practices regarding lumber disc herniation and coping strategies.

Keywords: Adult Patients, Coping Strategies, Lumber Disc Herniation

Introduction

Adulthood is a period in the human lifespan in which full physical and intellectual maturity have been attained. Adulthood is commonly beginning at age 20 years. Also, during which the individual achieve balance of growth in the physiological, psychosocial, and cognitive

areas has been attained and transition from dependent role to independent. Adults take responsibility for lives and decisions it's important to control over life. Therefore, adult people consider labor force of society and most active group which make them liable for many health problems which include physical, social and emotional problems (McGorry et al., 2022).

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Lumbar disc herniation is a common degenerative spinal disease that affects patients' quality of life and ability to work and causes great loss of labor force in the society. LDH is a frequent and common disease that majorly affected adults in clinical context and accounts for approximately two-thirds of spinal pain diagnoses. LDH mainly occurs in a single intervertebral space, among which L4-L5 and L5-S1 are the most intervertebral spaces disc herniation occur (**Kim et al., 2021; Zielinska et al., 2021**).

Disc herniation mean a tear in the outer, fibrous ring of an intervertebral disc allows the soft, central portion to bulge out beyond the damaged outer rings. Also LDH is partial or complete displacement of disc material and localized displacement of nucleus, cartilage, fragmented apophyseal bone, or fragmented annular tissue beyond the intervertebral disc space. The disc herniation goes through the following steps. First, a cut may occur when the disc is blown without breaking the fibrous annulus. Secondly, a disc can be prolapsed where nucleus pulposus migrates into the outer fibers of the annulus fibrosus. Thirdly, there may be disc extrusion. In this case the annular fibrous is perforated and the core material moves into the epidural space (**Mahmoud et al., 2021; Ura et al., 2021**).

Also LDH can be classified by the area of the disc protrusion (herniation zone) into: Central; when disc extrudes into in the spinal cord which is considered a surgical emergency, Subarticular (lateral Recess or Paracentral); when the disc extrudes between the spinal cord and the foramen (the space through which the nerves exit the spinal canal) is the most common which constitute about

90-95% of adults with LDH, foraminal (lateral), in which disc extrusion into the foramen less common which constitute about 5-10% of adults with LDH, which affecting exiting/upper nerve root, and extraforaminal (far lateral), where the disc extrusion beyond the foramen (**Asher & Pereira, 2020**).

Symptoms of LDH vary greatly depending on the location of the herniation and type of soft tissue affected, which include Intermittent or continuous back pain is the hall mark, tingling, numbness in the leg or foot and loss of lower-body motor function. Patients report increased pain when sitting, which is known to increase disc pressure in nearly 40% of cases. Spasm of back muscles, lumbar dysfunction, sciatica pain that starts near the back or buttock and travels down the leg to the calf or into the foot. Muscle weakness in legs and weakness in distribution of one or more lumbosacral nerve roots, and decreased reflexes at the knee or ankle. The affected dermatome varies based on the level of herniation as well as the herniation type (**Cluett & Hershman, 2020**).

Coping is a set of strategies that are constantly changing based on the demands of the situation, and adults with LDH are used to reduce negative impact of LDH on patients social relationships, self-esteem, and life satisfaction or psychological disturbances such as depression, stress, anxiety, and somatoform disorders. Coping strategies is a constantly changing cognitive and/or behavioral efforts to manage specific external and internal demands that are taxing or exceeding individual resources. Also play an important role in the psychosocial adaptations of the adults with

LDH, which include returning to normalcy, mediating and predicting Post-Traumatic Stress Disorder (PTSD), and managing depression after injury with LDH (Bjørndal et al., 2021; Sandin et al., 2021).

Community Health Nurse (CHN) plays an important role regarding controlling of LDH and limit it's complication through early diagnosis and early treatment for high-risk individuals or those who have already experienced it before and adults complain from symptoms of LDH. CHN should advise patient with LDH to apply proper body mechanics to keep spine safe during routine activities which is the most important lifestyle changes for patient with herniated disc, maintain ideal body weight to reduce load from spine, stop smoking to improve blood supply to vertebra, maintain good posture while sitting, standing, sleeping, do back-strengthening and stretching exercises at least 2 days a week, avoid heavy lifting, get active and eat healthy to limit further deterioration. CHN tries to promote the patients adjustment with condition, restoration of function within family, society, and work (Marshall et al., 2021; Taylor et al., 2021).

Significance of the study:

Lumbar disc herniation is rapidly emerging as a global health problem among population and a major cause of medical expenses. The prevalence rate of this disease remains unclear in Egypt due to lack of systematic data. Moreover LDH become a major cause of disability in both developed and developing countries, and is most common in people in third to the fifth decade of life, although it has been described in all age groups, with a male to female ratio of 2:1. The

main Two-thirds of adults have suffered back pain in their lives, and approximately 85% of patients suffered sciatica caused by LDH. Highest incidence, accounting for about 90% of the total incidence. It has been estimated that 2 to 3% of the population may be affected, with prevalence of 4.8% among men over 35 years of age and 2.5% among women over this age (Hao, 2021; Manchikanti et al., 2021).

Aim of the study:

This study aimed to assess coping strategies among adult patients regarding LDH.

Research questions:

1. What is the patients` knowledge regarding lumbar disc herniation and coping strategies?
2. What is the pain level among patients with Lumbar disc herniation?
3. What are the patients` coping strategies regarding lumbar disc herniation?
4. What is the dependency level of daily living activities among patient with Lumbar disc herniation?
5. Is there a relation between level of coping, knowledge level and dependency level of activity of daily living of patients with lumbar disc herniation?

Subject and Methods

Research design: A descriptive research design was utilized to conduct this study.

Settings: This study was conducted at Neurosurgery Outpatient Clinic of Benha University Hospital.

Sampling: A convenient sample was used in this study it includes 151patients, (the total number of sample 168 patients, 17 patients were taken as a pilot study). The sample was chosen from previously metioned setting. Adult

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Patients with lumbar disc herniation attending to the Neurosurgery Clinic for follow up were chosen through a period of six months, according the following criteria :Age 25 <60 year, partially dependent and independent adult patients. Where the total Patients admitted to Out Patient Clinic last year were 384 Patients.

Tools of data collection:

Four tools were used to collect the data:

Tool (I): A structured interviewing questionnaires: It was developed by the researcher based on reviewing related literatures, and it was written in simple clear Arabic language: It comprised of three parts to assess the following:

First part: It was concerned with sociodemographic characteristics of the studied patients with lumbar disc herniation. It included nine closed ended questions as age, sex, marital status, educational level, residence, type of family, type of work, change in work nature, and type of change.

Second part: It was concerned with medical and family history of the studied patients with lumbar disc herniation. It included eighteen closed ended questions divided as the following: (present and past medical history, medication history, family history).

Third part (A): It was concerned with knowledge of the studied patients regarding lumbar disc herniation, which included eight closed ended questions (multiple choice type).

(B): It was concerned with knowledge of the studied patients regarding coping strategies, which included four closed ended questions (multiple choice type). **Note:** source of

knowledge is not included in the score of knowledge

Scoring system:

The scoring system for the studied patients knowledge was calculated as follows: (2) score for complete answer, (1) score for incomplete answer, and (0) for don't know. The total knowledge score =24 score.

The total knowledge score was considered good if the score $\geq 75\%$ (≥ 18 score), while considered average if equal $50\% < 75\%$ ($12 < 18$ score), and considered poor if $< 50\%$ (< 12 score).

Tool (II): Visual analogue pain scale: It was adopted from **Griensven et al., (2013)** to assess the level of pain for studied patients with lumbar disc herniation. The scale composed of 5 items ranged from "No pain" to "intolerable pain".

Scoring system

The total scores of pain level scale ranged from (0-10), the scores given as the follows: (0) score for no pain, (1-3) score for mild pain, (4-6) score for moderate pain, (7-9) score for severe pain, and (10) score for intolerable pain possible.

Tool (III): Coping Strategy Questionnaires (CSQ): It was adopted from **Fischer, (2021)** and modified by researcher to assess coping level among adult patients with lumbar disc herniation divided into eight strategies as follows: cognitive coping, diversion, reinterpretation, praying, hoping, avoided activity, seeking social support, catastrophizing.

Scoring system

The adult patients coping level score was calculated as follows: (2) score for always, (1) score for sometimes and (0) score for never. These were respectively scored for positive coping, while reversed for negative coping. The total coping level = (74 score).

The total coping score was considered high if the score $\geq 75\%$ (≥ 55 score), while considered moderate if 50- $<75\%$ (27- <55 score), and considered low if $< 50\%$ (< 27 score).

Tool IV: Barthel index of activities of daily living: It was adopted from **Jain, (2017)** and modified by researcher to assess the studied patient's dependency level toward activities of daily living. The scale composed of ten categories (bowel control, bladder control, grooming, toilet use, feeding, transfer, mobility, dressing, climb stairs, bathing).

Content validity and reliability:

Validity of the tool defined as the extent to which the tool is accurately measure what is supposed to measure. Content validity of the tool was ascertained by three staff nursing experts in Community Health Nursing Specialties of Benha University who reviewed the tools for clarity, relevance, comprehensiveness, and applicability.

Reliability of the tool refers to consistency of the results when the test repeated more than one on different occasion. Reliability of the tool was applied by the researcher for testing internal consistency of the tool, by administration of the same tool to the same subjects under similar condition on one or more occasion. Answer from repeated testing were compared (test-re-test reliability). The

reliability was done by Cronbachs alpha coefficient test which revealed that reliability statistics for knowledge was 0.923, reliability statistics for coping was 0.746 and reliability statistics for daily living was 0.782.

Ethical considerations

All ethical issues were assured; oral consent has been obtained from each patient before conducting the interview and given them a brief orientation to the purpose of the study. They were also reassured that all information gathered would be kept confidentially and used only for the purpose of the study. Patient had right to withdraw from the study at any time without giving any reasons.

Pilot study:

The pilot study was carried out on 10% of the studied patients (17 patient) with lumber disc herniation. The researcher visited the Neurosurgery Outpatient Clinic two days/ week (Sunday & Wednesday) from 9.00 am:12 pm, to collect data and interviewed the patients individually during a period of first 15 days of November 2021. The pilot study aimed to assess the tool clarity, applicability and time needed to fill each tool. The pilot study sample was excluded from the total sample as modifications on the coping strategy scale was done.

Fieldwork:

The study was conducted over a period of 6 months from the beginning of November 2021 to the end of April 2022 after taking official permission from dean of Faculty of Nursing Benha University and approval of director of previously mentioned setting. The investigator visited the Neurosurgery Outpatient Clinic two days/ week (Sunday & Wednesday) from 9.00 am : 12 pm, to collect

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data and interviewed the patients with lumbar disc herniation individually. The average time needed to fill the tool around 30-45 minutes, the patients average number interviewed at the Neurosurgery Outpatient Clinic were 3-4 patients/day depending on the responses and understanding of the patients., each interviewed patient takes about 30-45 minutes.

Statistical analysis:

All data collected were organized, tabulated and analyzed by using the Statistical Package for Social Science (SPSS) version 21, which was used frequencies and percentages for qualitative descriptive data, and chi-square coefficient χ^2 was used for relation tests, and mean and standard deviation was used for quantitative data, Pearson correlation coefficient (r) was used for correlation analysis and degree of significance was identified.

Results

Table (1): Shows that; 35.1% of the studied patients aged from 35 to less than 45 years with mean \pm SD 41.01 \pm 9.74, 54.3% of them were males, 73.5% were married. While 43% of them had secondary education, 68.9% were from rural areas, 58.2% of them monthly income not enough and 50.3% living in extended family.

Table (2): Clarifies that; 64.9% of the studied patients had moderate pain which affect

duties performance, while 17.9% had severe pain which affect basic needs and only 2.6% of them had intolerable which require complete rest with mean \pm SD (5.33 \pm 1.80).

Table (3): Reveals that; 60.3% of the studied patients had high level of the total praying coping strategy regarding lumbar disc herniation, 16.6%, 11.3%, and 9.9% of them had low level of total coping strategies regarding lumbar disc herniation in cognitive, reinterpretation pain sensation, diversion respectively.

Figure (1): Clarifies that; 53.7% of studied patients had average total knowledge level, however 15.2% of the them had good total knowledge level about lumbar disc herniation

Figure (2): Shows that; 76.8% of the studied patients had independent level regarding activities of daily living, while 23.2% of the them had partially dependent level regarding activities of daily living.

Table (4): Reveals that; there was positive highly statistically significant correlation between total knowledge level of the studied patients and total coping level and also there was positive highly statistically significant correlation between total coping level and total dependency level (p-value < 0.001).

Table (1): Frequency distribution of the studied patients regarding their sociodemographic characteristics (n=151).

Sociodemographic characteristics	No.	%
Age/ years		
25 <35	28	18.5
35 <45	53	35.1
45 <55	40	26.5
55 <60	30	19.9
Min - Max	25-57	
Mean ±SD	41.01 ±9.74	
Gender		
Male	82	54.3
Female	69	45.7
Marital status		
Single	29	19.2
Married	111	73.5
Widowed	8	5.3
Divorced	3	2.0
Educational level		
Don't read and write	38	25.2
Basic education	22	14.6
Secondary education	65	43.0
University education and more	26	17.2
Residence place		
Urban	47	31.1
Rural	104	68.9
Monthly income		
Enough and save	12	8.0
Enough	51	33.8
Not enough	88	58.2
Type of family		
Single individual	23	15.2
Nuclear family	52	34.5
Extended family	76	50.3

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Table (2): Frequency distribution of the studied patients regarding level of the pain resulting from lumbar disc herniation (n=151).

Level of pain	No.	%
Mild (can ignored)	22	14.6
Moderate (affect duties performance)	98	64.9
Severe (affect basic need)	27	17.9
Intolerable (require complete rest)	4	2.6
Min – Max	2-10	
Mean ±SD	5.33±1.80	

Table (3): Frequency distribution of the studied patients regarding subtotal level of coping strategies (n=151).

Total coping strategies items	Coping level					
	High		Moderate		Low	
	No.	%	No.	%	No.	%
Cognitive	34	22.5	92	60.9	25	16.6
Diversion	31	20.6	105	69.5	15	9.9
Reinterpretation pain sensation	26	17.2	108	71.5	17	11.3
Praying	91	60.3	60	39.7	0	0.0
Hoping	38	25.1	104	68.9	9	6.0
Avoiding Activity	43	28.5	97	64.2	11	7.3
Seeking social support	51	33.8	100	66.2	0	0.0
Catastrophizing	69	45.7	74	49.0	8	5.3

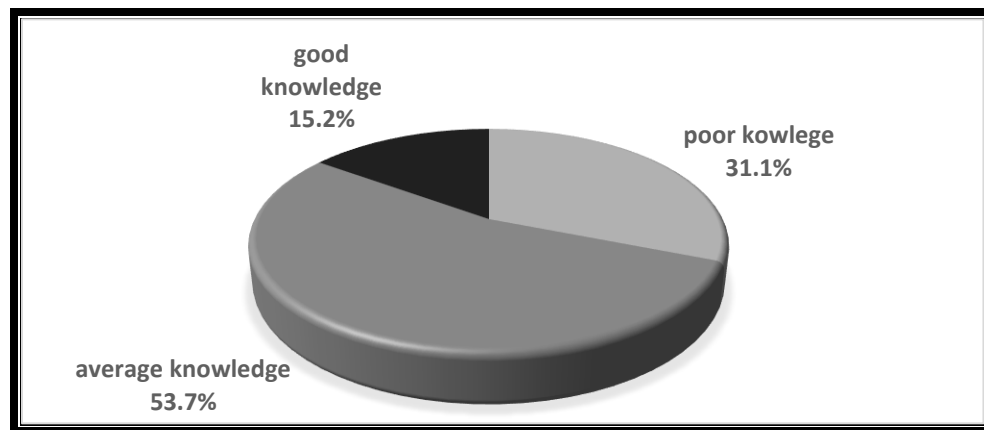


Figure (1): Percentage distribution of the studied patients regarding total knowledge level regarding lumbar disc herniation (n=151).

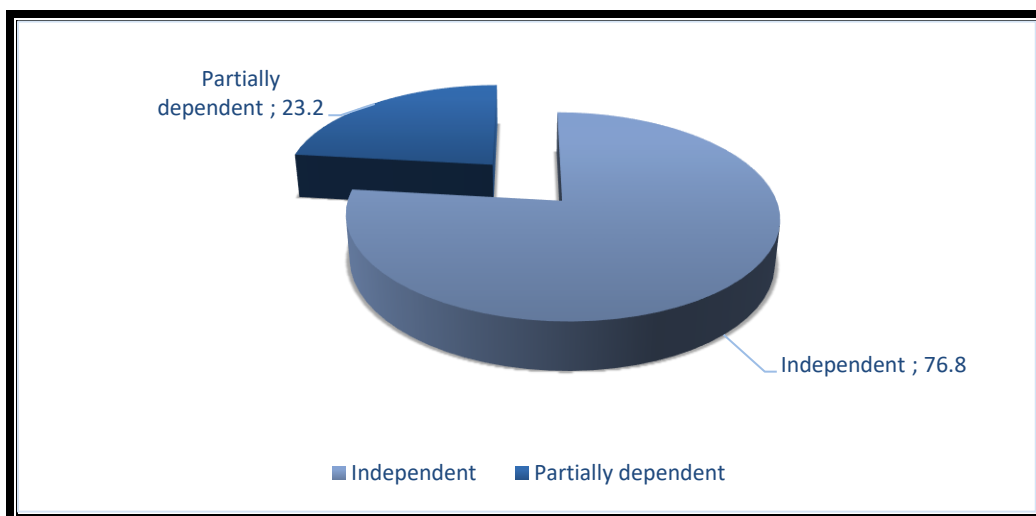


Figure (2): Percentage distribution of studied patients regarding total dependency level (n=151).

Table (4): Correlation matrix between total knowledge, coping, and dependency level among the studied adult patients (n=151).

Items	P-value	Total knowledge level	Total coping level	Total dependency level
Total knowledge	R	1	.342	.182
	P-value		.000**	.026*
	N	151	151	151
Total coping	R	.342	1	.332
	P -value	.000**		.000**
	N	151	151	151
Total dependency	R	.182	.332	1
	P -value	.026*	.000**	
	N	151	151	151

****Highly statistically significant (P < 0.001) ** * Statistically significant (P < 0.05) ***

Discussion

Lumber Disc Herniation is one of the most common degenerative spinal conditions resulting in lower back pain and sciatica. It is common in people aged 20 to 50 years old.

Recently; LDH incidence has been on a rise and is commonly seen in young adults, resulting in widespread damage on people’s life and health. The pain and intervertebral disc degeneration give rise to a decrease of lumbar activities,

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further leading to the decrease of back muscular strength and the range of motion of lumbodorsal muscle, generally leading to motor dysfunction and disability. Therefore; Its treatment is devoted to reducing pain and restoring motor function. Despite considerable efforts in the surgical treatment of LDH in the past decades, experts in LDH rehabilitation still emphasize that conservative treatment is an important way to treat LDH (Hao, 2021).

Regarding to sociodemographic characteristics of the studied patients; this study showed that more than one third of the studied patients were aged from 35<45 years old with mean age 41years, more than half of the studied patients with LDH were males, slightly less than three quarters of the studied patients were married, more than two fifths of studied patients had secondary education, more than two thirds of the studied patients were from rural areas, slightly less than three fifths of studied patients monthly income not enough, and approximately half of the studied patients living in extended family.

Concerning to the studied patients pain level resulting from LDH; the present study revealed that less than two thirds of the studied patients had moderate pain which affect duties performance. This finding was in the same line with **Abd Allah et al. (2021)**, who conducted a study on "Daily living activities disability among elderly patients with lumbar herniated disc in Egypt" (n=65), and reported that; 56.9% of the studied patients had moderate pain. This might be intensity of the pain based on type and level of herniation in addition to the pain aggravated only with movement when herniated disc touched nerve root of vertebrae.

Regarding to studied patients total level of coping strategies regarding LDH; the current study revealed that slightly more than three fifths of the studied patients had high level of praying coping strategy. This finding was in the same line with **Abd Rahman et al. (2020)**, who conducted a study on "Work-related musculo-skeletal symptoms and coping strategies among dental auxiliaries at hospital university Sains In Malaysia"(n=67), and reported that; 63% of dental auxiliaries use religion as coping strategies toward work-related musculo-skeletal symptoms. This might be due to connecting to Allah help to cope well stress result from condition and using praying as coping strategy seems to be another way of accepting condition.

The present study revealed that more than half of the studied patients had average total knowledge regarding lumbar disc herniation. This finding was in the same line with **Alshammari et al. (2021)**, who conducted a study on " Public awareness towards disk herniation in Ha'il region, Saudi Arabia: A cross-sectional study in Saudi" (n= 519), and reported that; 56.9% of the studied had moderate awareness toward disc herniation. This might be due to more than two fifths of studied patients had secondary education which reflected on level of health education.

The current study illustrated that slightly more than three quarters of the studied patients had independent level regarding activities of daily living. This finding disagreed with **Zakariea et al. (2022)**, who reported that; 72 % of the adult patients with lumbar disc were dependent (need help) regarding basic daily living activities.

Regarding to correlation between total knowledge, total coping level, and total dependency level among the studied patients with LDH; this study revealed that there was positive highly statistically significant correlation between total coping level of the studied patients and total dependency level. This finding agreed with **Galczyk et al. (2021)**, who studied a " chronic back condition and the level of physical activity as well as internet addiction among physiotherapy students during the covid-19 pandemic in Poland" (n= 141), and reported that there were statistically significant correlation between total coping level of the studied peoples and dependency level. This might be due to positive coping with disease help patients to become independent in performing activities and stay active in life

Conclusion

Most of the studied patients had low back pain, and about more three-fifths of the studied patients were affected in the L4&L5 vertebrae. More than half of the studied patients had average total knowledge level regarding LDH, less than two thirds of the studied patients had moderate pain which affect duties performance, more than three fifths of them had moderate coping levels, and slightly more than three quarters of studied patients were independent level regarding activities of daily living. There was a statistically significant relation between level of coping of the studied patients and their dependency level in performing activities of daily of living. There was a highly statistically significant relation between level of coping and total knowledge level of the studied patients with lumber disc herniation.

Recommendations

- 1- Develop and implement health education program to improve adult patients' knowledge and practices regarding lumber disc herniation and coping strategies.
- 2- Developing illustrated booklet with illustrated picture and should be disseminated as educational guide lines about lumber disc herniation management among adult patients and assisting them to maintain a positive approach toward their condition and prevention of its progression and complications.
- 3- Develop rehabilitation program for adult patient with lumber disc herniation to stay active and restore optimal level of functioning.
- 4- Further studies needed to be focusing on factors affecting coping among patients with lumber disc herniation.

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إستراتيجيات التكيف بين المرضى البالغين المصابين بالإنزلاق الغضروفي القطني

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يعد مرض الإنزلاق الغضروفي القطني من الأمراض المنتشرة عالميا في كل من البلدان المتقدمة والنامية. ويعد سبباً رئيسياً للإعاقة بين المرضى البالغين، حيث أنه يحدث في جميع الأعمار ولكن وجد أن أعلى معدل انتشار يكون بين المرضى الذين تتراوح أعمارهم بين 30 و 50 عامًا. ويعد إرشاد المريض إلى أهمية التكيف الإيجابي مع الإنزلاق الغضروفي القطني جزء ضروري وذلك للحد من الآثار السلبية الناتجة عن المرض. لذا هدفت هذه الدراسة الي تقييم إستراتيجيات التكيف بين المرضى البالغين المصابين بالإنزلاق الغضروفي القطني. وقد أجريت هذه الدراسة في العيادات الخارجية لجراحة المخ والأعصاب بمستشفى بنها الجامعي. وتم إستخدام العينة المتاحة في هذه الدراسة وتم تطبيقها على 151 مريض. وأظهرت النتائج أن 97.4% لديهم ألم أسفل الظهر، 64.9% من المرضى لديهم إنزلاق غضروفي في الفقرة القطنية الرابعة و الخامسة، كما أوضحت الدراسة أن 50.4% من المرضى لديهم معلومات متوسطة عن الإنزلاق الغضروفي القطني. فيما يتعلق بالارتباط بين معلومات المرضى، مستوى تكيفهم ومستوى الإعاقة في أداء أنشطة الحياة اليومية، وجد علاقة ذات دلالة إحصائية بين معلومات المرضى و مستوى تكيفهم. وهناك علاقة ذات دلالة إحصائية بين مستوى التكيف و مستوى الإعاقة في أداء أنشطة الحياة اليومية، كما وجد علاقة ذات دلالة إحصائية بين مستوى أداء أنشطة الحياة اليومية و معلومات المرضى. وقد اوصت نتائج الدراسة بعمل برنامج تثقيف صحي وذلك لتحسين معلومات وممارسات المرضى البالغين تجاه الإنزلاق الغضروفي القطني وإستراتيجيات التكيف.