Research in Physical Education, Sport and Health
2023, Vol. 12, No. 1, pp.21-26
ISSN(Print):1857-8152; ISSN(Online):1857-8160

INTENSITY OF LOW BACK PAIN AND QUALITY OF LIFE IN PATIENTS POST-OPERATIVE TREATMENT AND PHYSICAL THERAPY

DOI:https://doi.org/10.46733/PESH23121021j
(Original scientific paper)

Adriatik Jahjaga, Mitrichka Dzambazovska Stardelova, Vijica Zhivkovikj
Ss. Cyril and Methodius University, Faculty for physical education, sport and health, Skopje, North Macedonia

Abstract

Purpose: The pain in the lower back is a major contributing factor to disability worldwide, impacting the quality of life. TThis study aimed to examine the association between the disability index related to lower back pain and the eight dimensions of the SF-36 healthcare assessment questionnaire in patients with intervertebral disc herniation who underwent surgical treatment and physical therapy. Methods: The study was conducted on a sample of 59 participants. Data collection included a demographic questionnaire, a questionnaire for assessing disability related to lower back pain, and the short version of the SF-36 quality of life assessment questionnaire. Descriptive and analytical statistics using SPSS version 22 were employed for data analysisResults : The results indicate that the overall predictive system had a statistically significant influence on the multivariate level concerning the disability index related to pain. Among the variables (dimensions), physical functioning, social functioning, and pain in the body showed statistically significant influences on the univariate level. Conclusion: This study demonstrates that lower back pain can indeed reduce both physical and mental functioning in patients suffering from the condition.

Keywords : *Pain in the lower one part on the back , intensity on pain , quality on life , patient*

Introduction

Low back pain refers to pain and discomfort localized in the lumbosacral region, with or without pain radiating to the legs. This pain is between the costal arches and the lower gluteal folds, which is usually accompanied by limitation of movement [1]. In 2013, the WHO estimated the prevalence of low back pain to be around 60–70% in industrialized countries [2]. In 2015, the global point prevalence of activity limiting low back pain was 7.3%, meaning that 540 million people were affected at any one time. Low back pain is now the number one cause of disability globally [3]. It is estimated that about 70% of people in developed countries have experienced low back pain during their lifetime [4,5]. The greatest increase in disability caused by low back pain over the past few decades has occurred in low- and middle-income countries, including Asia, Africa, the Western Balkans, and the Middle East, where health and social systems are poorly equipped [6].

The prevalence of low back pain in the general population is estimated to be between 60 and 80% [7,8]. Low back pain is an extremely common symptom experienced by people of all ages [9-11].

Globally, low back pain is among the highest contributor to disability and ranks highly as a cause of years lived with disability. [3, 12]. In other words, low back pain is the leading cause of years lived with disability in both developed and developing countries, and the sixth in terms of the overall burden of disease (years of life spent with disability) [13, 14].

The key factors contributing to low back pain and disability are comorbidities, social factors, psychological factors, genetic factors, and biophysical factors [11]

Strategies for the prevention of low back pain are exercise, education and self-care, wearing a belt, shoe inserts, ergonomic workplace interventions, ergonomic school furniture, yoga, cognitive behavioral therapy, massage, etc [15-17].

Low back pain has been shown to be one of the main reasons for seeking medical care and causes a huge medical and economic burden on individuals, families, communities, industry and governments [18]. Low back pain can also affect physical function and quality of life and lead to reduced function and quality of life [5,19].

Quality of life is the general well-being of individuals and the community, emphasizing the negative and positive aspects of life. Quality of life includes all aspects of physical health, family, education, employment, wealth, safety, security, religious beliefs and environment [20]. In general, it can be pointed out that back pain affects all aspects of life such as physical, financial, spiritual and psychological, which leads to a decrease in the quality of life overall [21].

In a certain number of studies it has been established that there is a correlation between the intensity of pain and quality of life . That means that the increased intensity of pain can result with smaller physical function on the individuals and effects on their mental / social and general health [22,23].

The aim of this study is to investigate the association of the low back pain disability index with the eight dimensions of the health status assessment questionnaire SF-36 in patients with herniated intervertebral discs after operative treatment and physical therapy.

Methods

Sample of respondents

The research was conducted on a sample of 59 respondents, consisting of 25 males and 34 females. The criteria for exclusion from the study were the presence of comorbidities such as diabetes, cerebrovascular insulates, bronchial asthma, urticaria, alcoholism, and pregnancy.

An instance of a variable

Data were collected based on history, physical examination, available medical documentation, and specific questionnaires used in low back pain.

The Oswestry Low Back Pain Disability Questionnaire is utilized to assess the functional condition and degree of impairment related to pain in the lower back. This questionnaire consists of questions from ten areas, with six answer options provided for each area. The intensity of the answers is scaled from 0 to 5. The final result (grade) is evaluated in percentages, where a higher grade indicates a more negative assessment of the current condition and prognosis. For instance, a grade ranging from 0-20% represents minimal disability, 21-40% indicates moderate disability, 41-60% denotes pronounced (severe) disability, 61-80% signifies very pronounced disability, and 81-100% represents complete disability. The validity and reliability of the results obtained using this questionnaire have been confirmed by numerous studies (references: 200, 201, 202, 203). This is particularly relevant for individuals experiencing more pronounced and long-lasting symptoms of lumbar syndrome (reference: 204).

The SF-36 questionnaire (Ware et al., 1993; 2000) will be utilized to assess healthcare status and quality of life related to health. This questionnaire enables self-assessment of mental and physical health as well as social functioning. Each part of the questionnaire pertains to one of the eight different health domains, encompassing two general concepts of health: mental and physical. The SF-36 questionnaire comprises nine healthcare scales, and the overall result is presented in a profile format. The SF-36 is a shortened version of the healthcare status questionnaire, consisting of only 36 questions (checklists). It is considered multifunctional as it is widely applicable and not specific to any particular age group, disease, or population. The results are expressed as standardized values ranging from 0 to 100 for each dimension. Lower scores indicate reduced functionality, limitations, pain, and poor health assessment, while higher scores indicate good health, absence of pain, and no functional limitations. The questions in the questionnaire have multiple-choice options. Typically, the results are presented in terms of the nine dimensions that form the profile of healthcare status, namely:

1. physical functioning (all consists of of 10 particles)
2. limitations because of physically difficulty (3 particles)
3. limitations because of emotional difficulty (3 particles)
4. social functioning (2 particles)
5. mentally health (5 particles)
6. energy and vitality (4 particles)
7. pains in the body (2 particles)
8. perception on the general health (5 items).

Statistical data processing

Descriptive statistics (ie, frequencies, percentages, arithmetic means, and standard deviations) were applied to all variables. The normal distribution of numerical variables was assessed with the Kolmogorov-

Smirnoviot test. The association was determined by multivariate linear regression analysis. Data analysis was done using IBM SPSS version 22.0 software.

Results

Of the total number of patients, 57.6% are female (n=34), and 42.4% are male (n=25). The average age of the sample was 63.2±12.0. The largest percentage of respondents (61.0%) are over 60 years old. From a review of the table it can be seen that 13.6% have minimal disability, 57.6% mild disability, 27.1% moderate disability and 1.7% severe disability.

Table 1 . General characteristics of the studied participants

	n	%
Gender		
Male	25	42.4%
Female	34	57.6%
Age		
40 to 49 years	9	15.3%
50 to 59 years	14	23.7%
> 60 years	36	61.0%
Mean (SD)	63.2	±12.0
Oswestry Disability Index		
No disability	8	13.6%
Mild disability	34	57.6%
Moderate disability	16	27.1%
Severe disability	1	1.7%

In order to determine how the eight dimensions of the health status assessment questionnaire SF-36 multivariately affect the criterion variable index of disability from low back pain, a multivariate linear regression analysis was applied. The results of the regression analysis are shown in table 2.

The system of predictor variables (table 2) statistically significantly affects the criterion variable, the low back pain disability index. The multiple correlation is . 822 and explains the common variability between the system and the criterion variable by about 68%. From the overall predictor system, the variables are (dimensions) physical functioning (β= -0.84, p=0.000), social functioning (β=-0.25, p=0.020) and body pains (β = -0.32, p= 0.010) .

Table 2 . Regression association of the low back pain disability index with the eight dimensions of the SF-36 health status assessment questionnaire

	R	**Part-R**	**BETA**	**T-TEST**	**Q**
Physical functioning	-0.73	-0.68	-0.84	-6.44	**0.00**
Role limitations due to physical health	-0.16	-0.19	-0.26	-1.32	0.19
Role limitations due to emotional problems	-0.09	0.17	0.22	1.20	0.24
Energy/fatigue	0.05	0.17	0.11	1.19	0.24
Emotional well-being	-0.08	-0.04	-0.02	-0.27	0.79
Social functioning	-0.56	-0.32	-0.25	-2.36	**0.02**
Pain	0.35	-0.35	-0.32	-2.63	**0.01**
General health	-0.21	-0.01	-0.01	-0.07	0.95
Age	-0.06	-0.22	-0.13	-1.58	0.12
Gender	0.01	-0.10	-0.06	-0.71	0.48
DELTA .822	RO .676	DF1 10	DF2 48		Q .000

Discussion

This study aimed to examine the relationship between the low back pain disability index and the eight dimensions of the SF-36 Health Status Assessment Questionnaire in patients who underwent surgery and physical therapy for herniated intervertebral discs. The majority of the participants in this study were women (57.6%) and over 60 years old (61.0%).

The research results indicate that the values of the disability index have an impact on the quality of life and can contribute to its reduction. Specifically, the findings reveal a significant association between the dimensions of physical functioning, social functioning, and body pain. However, age and gender did not have an effect on the criterion variable.

These results are somewhat consistent with the research of Nasution et al., (2018). The difference was that in Nasution's study, pain intensity was associated with all dimensions of quality of life except mental health [5]. In Shimi's research et al., (2014) comparing subjects with lumbar pain and healthy groups of subjects found a significant correlation between pain severity and physical function, social function, vitality, bodily pain, general health, limitations due to economic problems and physical role [37] which somewhat supports the results obtained in this study. Nasution et al. (2018) found a relationship between pain intensity and mental health that was not statistically significant [5].

The total quality of life score in the study by Zahra et al.,. (2020) was low, 7.5% of respondents had a significant negative correlation between the total quality of life score and total back pain. This means that lower back pain continues to be a common disease [21]. It is important to point out that both physical and mental health are related to chronic back pain. Back pain is associated with reduced quality of life, and a significant association with chronic back pain was found among all measures of physical and mental health [38].

Demirtas' study (2013) was conducted in order to determine the relationship of the intensity of low back pain with the quality of life and functional impairment in nurses suffering from LBP [39]. Nurses who had higher pain intensity had significantly worse scores on the functional disability, general health, physical function, physical, social function, and bodily pain domains of the SF-36 compared to nurses who had lower pain intensity.

Lower back pain gives rise to numerous health-related issues that impact not only the physical well-being of the patient but also various aspects of their life, including mood and health-related quality of life. As a result, health-related quality of life serves as a crucial health outcome across multiple dimensions, encompassing physical, mental, and social aspects. In this regard, improving the quality of life through education is an essential issue for health educators. A better understanding of the association between back pain and health-related quality of life may facilitate the implementation of new interventional approaches for the prevention and treatment of back pain.

Although this study has strengths, there are some limitations that could affect its results. One of the limitations of this study was the self-reporting of the patient's pain perception which is subjective and it may be that the results obtained are not adequate. Also, the small sample size was another limitation to consider. Therefore, it is recommended that further studies be conducted to assess the relationship between pain disability index and quality of life in a larger number of subjects.

Conclusion

Based on the results obtained, it can be concluded that the overall predictive system had a statistically significant influence on the criterion variable, the pain disability index, at the multivariate level. Specifically, at the univariate level, the variables (dimensions) of physical functioning, social functioning, and body pain demonstrated a statistically significant impact within the predictor system.

References

1. Comachio J, Magalhães MO, de Moura Campos A P, Silva C e, Marques A P. A cross-sectional study of associations between kinesiophobia , pain, disability, and quality of life in patients with chronic low back pain. Adv. Rheumatol . 2018; 58(8): doi.org/10.1186/s42358-018-0011-2
2. Ehrlich GE, Low back pain Bull. WHO. 2003; 81(9): 671-6
3. Vos T, Allen C, Arora M, Barber RM, Bhutta ZA, Brown A, et al. Global, regional, and national incidence, prevalence, and years lived with disability for 310 diseases and injuries, 1990-2015: a systematic analysis for the global burden of disease study 2015. Lancet. 2016 ;388 (10053):1545–602.
4. Chou R. Low back pain (chronic). BMJ Clin Evid . 2010:1116.
5. Nasution IK, Lubis NDA, Amelia S, Hocin K. The correlation of pain intensity and quality of life in chronic LBP patients in Adam Malik general hospital. IOP Conf. Series: Earth Environ Sci. 2018; 125(1): doi :10.1088/1755- 1315/125/1/012183

6. Hoy DG, Smith E, Cross M, et al. Reflecting on the global burden of musculoskeletal conditions: lessons learned from the global burden of disease 2010 study and the next steps forward. Ann Rheum Dis. 2015; 74(1): 4–7
7. Deyo RA, Weinstein JN. Primary care - low back pain. N Engl J Med. 2001; 344(5): 363–70.
8. Jaromi M, Nemeth A, Kranicz J, Laczko T, Betlehem J. Treatment and ergonomics training of work-related lower back pain and body posture problems for nurses. J Clin Nurs . 2012; 21(11-12):1776–84.
9. Hoy D, Bain C, Williams G, et al. A systematic review of the global prevalence of low back pain. Arthritis Rheum. 2012; 64(6): 2028–37.
10. Kamper SJ, Henschke N, Hestbaek L, Dunn KM, Williams CM. Musculoskeletal pain in children and adolescents. Braz J Phys Ther . 2016; 20(3): 275-84.
11. Hartvigsen J, Hancock MJ, Kongsted A, Louw Q, Ferreira ML, Genevay S, et al. Low back pain 1. Lancet. 2018; 391(10137): 2356–67.
12. Kassebaum NJ, Arora M, Barber RM, Bhutta ZA, Brown J, Carter A, et al. Global, regional, and national disability-adjusted life-years (DALYs) for 315 diseases and injuries and healthy life expectancy (HALE), 1990-2015: a systematic analysis for the global burden of disease study 2015. Lancet. 2016; 388(10053):1603–58.
13. Hoy D, March L, Brooks P, et al. The global burden of low back pain: estimates from the Global Burden of Disease 2010 study. Ann Rheum Dis. 2014; 73(6): 968–74.
14. Global Burden of Disease Study 2013 Collaborators. Global, regional, and national incidence, prevalence, and years lived with disability for 301 acute and chronic diseases and injuries in 188 countries, 1990–2013: a systematic analysis for the Global Burden of Disease Study 2013. Lancet. 2015; 386: 743–800.
15. Stochkendahl MJ, Kjaer P, Hartvigsen J, et al. National clinical guidelines for non-surgical treatment of patients with recent onset low back pain or lumbar radiculopathy. Eur Spine J. 2018; 27: 60–75.
16. Qaseem A, Wilt TJ, McLean RM, Forciea MA, Clinical Guidelines Committee of the American College of Physicians. Noninvasive treatments for acute, subacute , and chronic low back pain: a clinical practice guideline from the American College of Physicians. Ann Intern Med. 2017; 166: 514−30.
17. UK National Institute for Health and Care Excellence. Low back pain and sciatica in over 16s: assessment and management. November 2016. https://www .nice.or g.uk/guidance/ng59 (accessed Nov 7, 2017).
18. Furlan AD, Malmivaara A, Chou R, Maher CG, Deyo RA, Schoene M, van Tulder MW. 2015 updated method guideline for systematic reviews in the Cochrane back and neck group. Spine. 2016; 40 (21): 1660–73.
19. Kazemi SS, Tavafian SS, Hidarnia A, Montazeri A. Consequences and factors affecting work-related low back pain among nursing professionals: A qualitative study. Payesh . 2019; 18(3): 291- 303.
20. Barcaccia , Barbara (4 September 2013). Quality Of Life: Everyone Wants It, But What Is It ?. Forbes/Education. Retrieved 10 May 2019.
21. Zahra N, Sheha E, Elsayed H. Low Back Pain, Disability and Quality of Life among Health Care Workers. IJPRPM, 2020, 9(2):34-44.
22. Rostad HM, Puts MTE, Cvancarova Småstuen M, Grov EK, Utne I, Halvorsrud L. Associations between Pain and Quality of Life in Severe Dementia: A Norwegian Cross-Sectional Study. Dement Geriatr Cogn Disorder Extra. 2017; (7):109–21.
23. Relationship between diastasis of the rectus abdominis muscle (DRAM) and musculoskeletal dysfunctions, pain and quality of life: a systematic review. Physiotherapy. 2019; 105(1): 24-34.
24. McCormack HM, David JDL, Sheather S. Clinical applications of visual analogue scales: a critical review. Psychol. Med. 1988; 18(4): 1007-19.
25. Hawker GA, Mian S, Kendzerska T, French M. Measures of adult pain: Visual analog scale for pain (vas pain), numeric rating scale for pain (nrs pain), mcgill pain questionnaire (mpq), short-form mcgill pain questionnaire (sf-mpq), chronic pain grade scale (cpgs), short form-36 bodily pain scale (sf-36 bps), and measure of intermittent and constant osteoarthritis pain (icoap). Arthritis Care Res. 2011; 63(11): 240-52.
26. Jensen MP, Karoly P, Braver S. The measurement of clinical pain intensity: a comparison of six methods. Pain. 1986; 27(1): 117-26.
27. Ware JE, Sherbourne C D. The MOS 36-item short-form health survey (SF-36): I. Conceptual framework and item selection. Med Care. 1992; 30(6): 473–83.
28. Montazeri A, Goshtasebi A, Vahdaninia M, Gandek B. The Short Form Health Survey (SF-36) : translation and validation study of the Iranian version. Quality of life research. Qual Life Res. 2005; 14: 875-82.
29. Stefane T, Santos A M, Marinovic A, and Hortense P. Chronic low back pain: pain intensity, disability and quality of life. Acta Paul Enferm . 2013; 26(1): 14-20.
30. Yong SC, et al. How does chronic back pain influence quality of life in Koreans : A cross sectional study. Asian Spine J. 2014; 8(3): 346-52.
31. Kazemi SS, Tavafian SS, Hiller CE, Hidarnia A, Montazeri A. The effectiveness of social media and in-person interventions for low back pain conditions in nursing personnel (SMILE). Nurs . Open. 2021; 8: 1220–31.
32. Kazemi SS, Maghbouli R, Rafighi M. Effectiveness of the Back School Program in Employees Suffering from Low Back Pain. IJMPP. 2020; 5(2): 329-35.
33. Baillie L, Bacon CJ, Hewitt CM, Moran RW Predictors of functional improvement in people with chronic low back pain following a graded Pilates-based exercise program . J Bodyw Mov Ther . 2019; 23(1): 211-18.
34. O zdinç Anar S. The effectiveness of home-based exercise programs for low back pain patients. J Phys Ther Sci. 2016; 28 (10): 2727–30.
35. Tavafian SS, Jamshidi A, Shahmohammadi Sh. Low Back Pain Educational Programs and Quality of Life in Women Living With Chronic Low Back Pain: A Semi Experimental Study. Iran J Health Educ Health Promote . 2014; 2(1): 49-56.
36. Rahimi A, Vazini H, Alhani F. Monireh Anoosheh . Relationship between Low Back Pain with Quality of Life, Depression, Anxiety and Stress among Emergency Medical Technicians. Trauma Mon. 2015; 20(2): e18686.

37. Shim J, Lee K, Yoon S, Lee C, Doh J, Bae H. Chronic low back pain in young Korean urban males: The lifetime prevalence and its impact on health-related quality of life. J Korean Neurosurg Soc. 2014; 56(6): 482-7.
38. Husky MM, Farin FF, Compagnone P, Fermanian C, Kovess-Masfety V. Chronic back pain and its association with quality of life in a large French population survey. Health Qual Life Outcomes. 2018; 16(1):26 ;16 (1):195.doi:10.1186/s12955- 018-1018-4.
39. Demirtas RN. The effects of low back pain on quality of life and functional disability in nurses with low back pain. Ann. Rheum. Dis. 2013; 71(3):758.