

CHANGES IN THE QUALITY OF LIFE AFTER 15 DAYS OF TRADITIONAL PHYSIOTHERAPY TREATMENT AND EXERCISE PROGRAM IN PATIENTS WITH LOW BACK PAIN

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Abstract

Lumbar syndrome is one of the most common diagnoses in physiatry practice. Lower back pain is one of the most common musculoskeletal conditions that can occur in people of all races and ages. The aim of the investigation was to determine the changes in the quality of life after 15 days of traditional physiotherapy treatment and an exercise program in patients with low back pain. The research was carried out on a sample of 61 respondents who were diagnosed with lower back pain. The SF-36 Health Status Assessment Questionnaire was used to examine health status and health-related quality of life. The physical therapy treatment lasted 15 days; 5 times a week (Monday to Friday) for 3 consecutive weeks. In addition to traditional physiotherapeutic treatment, a program of exercises to strengthen weakened muscle groups was also applied. Differences in the analyzed variables in the initial and final measurements were determined by t-tests for dependent samples. Based on the obtained results, it can be concluded that between the initial measurement (before starting the physiotherapy treatment and the exercise program) and the final measurement (after the 15-day physiotherapy program and exercise program) there are significant changes in the health status and quality of life related to the health.

Key words : SF-36, back pain, quality of life

Introduction

There is almost no person who has not experienced back pain during his life. In Great Britain, as many as 84% of people have experienced lower back pain during their lifetime (1,2). Lumbar syndrome is one of the most common diagnoses in physiatry practice. Low back pain is one of the most common musculoskeletal conditions that can occur in people of all races and ages (3). Lumbar syndrome represents the discomfort that the patient feels in the back area, between the arches of the ribs and the lower gluteal regions, with or without the pain that spreads to the legs (4,5). The most common symptom of both lumbar and lumbosacral radicular syndrome is pain (6,7). It can be sharp, dull, in the form of a burning sensation, constant or occasional, appear when moving or at rest, intensify when standing still and when sneezing and coughing (1,2,3,4,5). It is estimated that currently 30% of the general population has low back pain but does not seek medical help, 5% has back pain that is treated, 40% of people have experienced or will experience lumbar pain, and 25% of people will never have this health problem (8,9). The prevalence of low back pain varies among the world's population. The probability of occurrence of back pain in adults is 58-84% during their lifetime, and it occurs mostly between the ages of 25 and 64 (10,11). The frequency of back pain continues to increase (3), for example in India by 23.09% (12,13) Pain in the lumbar spine is experienced by as many as 80% of people during their lifetime and has the characteristic of (2,7) is repeated. The frequency of disc herniation in men is 5.1%, and in women 3.7%, of which 90-97% occurs in the lumbar spine, and the rest in the cervical spine. Disc herniation of the thoracic spine is extremely rare (7).

Today, for most researchers, the subjective approach to assessing the quality of life is the most valid. There are many approaches to measuring the quality of life and they depend on its very definition. Quality of life can be measured in the population and the individual. Population quality of life can be obtained from census data, and for an individual, quality of life indicators can be obtained through questionnaires as self-report instruments. There are three key dimensions of quality of life: physical, psychological and social (65). The quality of life of patients with lumbar syndrome depends on their subjective and objective

condition, which is also related to the effectiveness of therapeutic modalities. Each of us can achieve a good life if we: respect life, follow good values, know what we want, listen to our inner desires and dreams, do not waste our energy, know that time is limited and that life should be lived well and responsibly. uses (68). When assessing the quality of life, not only indicators of material well-being (indicators of material inequality, income, poverty rate) are of great importance, but also a number of subjective factors that can have an impact on a person's life (mental health, quality of the environment, social relations, etc.) (65,66,67,68). A good quality of life is an important goal for both the individual and society as a whole and requires the engagement of all interested parties (69). The quality of life is multidimensional and depends on the general health, psychological state, the degree of independence in the performance of daily activities, the social environment, the ability to achieve personal goals, while the state of health is only a segment that makes up the quality of life (70). Quality of life is a much broader concept than health, where health is important, but not the most important prerequisite for a good quality of life. The aim of the investigation was to determine the changes in the quality of life after 15 days of traditional physiotherapy treatment and an exercise program in patients with low back pain.

Methods

Sample of respondents

The research was carried out on a sample of 61 respondents who were diagnosed with lower back pain. The pain is diagnosed in collaboration with a rheumatologist, orthopedist, neurosurgeon or neurologist with lumbar disc herniation, using lumbar MRI or CT. The respondents were treated at the University Hospitals of Kosovo, as well as A.H. Center for physiotherapy in Pristina. Inclusion criteria : diagnosis of partial back pain confirmed by a rheumatologist, orthopedic neurosurgeon, neurologist or radiologist, women and men aged 25-65, lumbago or lumbago for at least 6 weeks, unilateral radiculopathy. Exclusion criteria : patients with a history of lumbar injection within the last 4 weeks, marked osteoporosis, history of lumbar surgery, acute trauma, inflammatory pain, neurological disease, and lumbar instability.

An instance of a variable

Assessment Questionnaire (Ware et al., 1993; 2000) was used to examine health status and health-related quality of life. The questionnaire is intended for self-assessment of mental and physical health and social functioning. Each part of the questionnaire refers to one of eight different areas of health, within two general concepts of health, mental and physical. In this way, the SF-36 questionnaire contains nine different health scales, and the total score is presented in the form of a profile. The SF-36 is a short form of a health status questionnaire that consists of only 36 questions (checklists) and is considered multifunctional because it is very general and does not rely on a certain age, disease or specific population. The score is expressed as a standardized value ranging from 0 to 100 for each dimension. Low scores indicate reduced and limited functionality, i.e. loss of function, presence of pain and assessment of health as poor. High scores indicate that health is good, without pain and without functional limitations. According to the answer type, the questions are multiple choice. The result is usually expressed on eight dimensions that make up the health status profile, namely:

1. physical functioning (consists of 10 particles)
2. limitations due to physical difficulties (3 particles)
3. limitations due to emotional difficulties (3 particles)
4. social functioning (2 particles)
5. mental health (5 particles)
6. energy and vitality (4 particles)
7. body aches (2 particles)
8. perception of general health (5 items).

Treatment protocol

The physical therapy treatment lasted 15 days; 5 times a week (Monday to Friday) for 3 consecutive weeks. The session lasts from 1 hour to 1 hour and 30 minutes. In addition to traditional physiotherapeutic treatment, a program of exercises to strengthen weakened muscle groups was also applied. Exercise 1. lie down, stand for 5 minutes every two hours. Exercise 2. of inverted stretching in the elbows for 5 minutes every two hours. Exercise 3. Reverse the extension with outstretched arms. The patient is told to relax the

back, not to use the muscles, the stretching activity should remain for a few seconds, repeating 10 times every two hours.

Statistical data processing

For all variables that are on the scale of interval and ratio (measurement), the following are calculated : basic statistical parameters: arithmetic mean (X), standard deviation (SD), coefficient of variability (V), minimum score (MIN), maximum score (MAX); asymmetry (skewness) of the distribution of results; skewness or flatness (kurtosis) of the distribution of results; Kolmogorov-Smirnov method for testing the normality of the distribution of results (KS).

Univariate differences in the analyzed variables in the initial and final measurements were determined by t-tests for dependent samples. Data are processed with statistical package SPSS for Windows version 22.0 and Statistics for Windows version 10.0.

Results

The basic descriptive parameters and normality of the distribution of the variables that were an integral part of the health status assessment questionnaire SF - 36 in the initial and final measurements are shown in the tables of 1 and 2.

Table 1. Descriptive statistics and normality of the distribution of the variables that were an integral part of the " SF-36 " questionnaire in the initial measurement

	Mean	Min	Max	SD	KV%	SE	Skew	Kurto	KS
Physical functioning	59.84	15.00	95.00	22.08	36.90	2.83	-0.41	-0.76	p < .15
Role limitations due to physical health	40.98	0.00	100.00	27.02	65.92	3.46	0.20	-0.46	p < .05
Role limitations due to emotional problems	43.72	0.00	100.00	28.89	66.09	3.70	0.29	-0.47	p < .01
Energy/fatigue	51.15	0.00	100.00	26.90	52.59	3.44	-0.15	-1.03	p > .20
Emotional well-being	56.66	4.00	96.00	22.76	40.17	2.91	-0.29	-0.54	p > .20
Social functioning	59.02	0.00	100.00	24.59	41.67	3.15	-0.33	-0.39	p < .20
Pain	58.65	0.00	100.00	23.75	40.50	3.04	-0.19	-0.48	p > .20
General health	50.41	5.00	90.00	21.20	42.05	2.71	-0.21	-0.61	p > .20

From the review of (table 1.) it can be seen that in the initial measurement the skewness values of all the variables that were an integral part of the SF-36 health status assessment questionnaire are within the recommended values from -1 to +1, indicating that the distribution of results is approximately symmetrical. From the kurtosis values (table 1.), it can be seen that all applied variables show flattening (platykurtic distribution). The values of the coefficients of variation range from 36.90 (for the variable physical functioning) to 66.09 (for the variable role limitations due to emotional problems). The results of the Kolmogorov Smirnova procedure showed that most of the applied variables in the initial measurement, they are normally distributed. A deviation from the normal distribution at the .01 level was determined for the variable role limitations due to emotional problems , while a deviation at the .01 level was determined for the variable role limitations due to physical health - limitations due to physical difficulties.

From the review of (table 2.) it can be seen that in the final measurement the skewness values of all the variables that were an integral part of the SF-36 health status assessment questionnaire are within the recommended values from -1 to +1, indicating that the distribution of results is approximately symmetrical. Negative asymmetry is determined in the physical functioning variables (Sk=-1.57), role limitations due to physical health (Sk=-3.60) and role limitations due to emotional problems (Sk=-3.13). From the kurtosis values (table 2.), it can be seen that most of the applied variables show flattening (platykurtic distribution). A leptokurtic distribution is observed in the variables role limitations due to physical health and role limitations due to emotional problems. The values of the coefficients of variation range from 6.34 (for the variable role limitations due to physical health) to 34.33 (for the variable General health - perception of general health). The results of the Kolmogorov Smirnova procedure showed that most of the applied variables in the initial measurement are normally distributed. Deviation from normal distribution at the .01 level. was determined for the variable role limitations due to emotional problems - limitations due to emotional difficulties , while deviation at the .01 level. was determined for the variables physical functioning, role limitations due to physical health and role limitations due to emotional problems

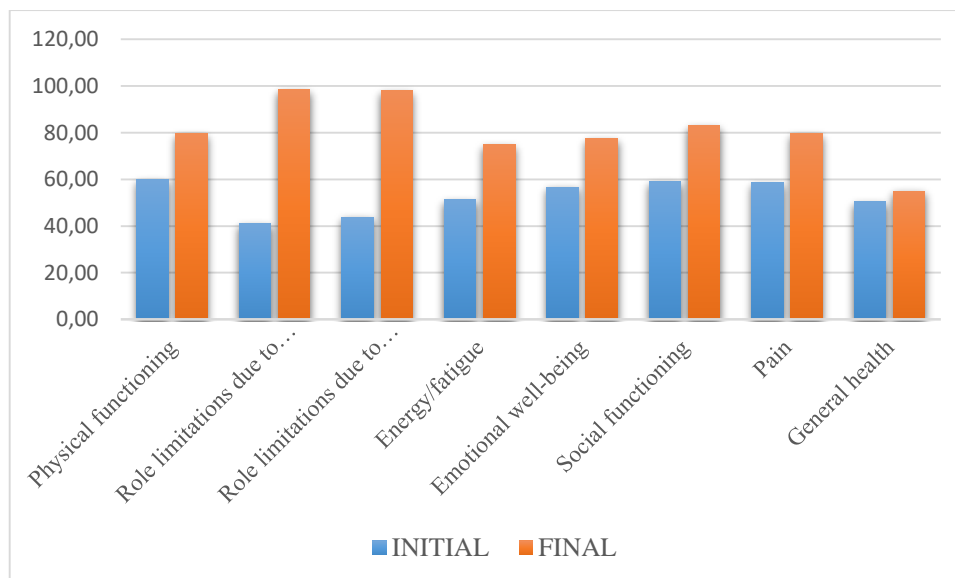
Table 2. Descriptive statistics and normality of the distribution of the variables that were an integral part of the " SF-36 " questionnaire in the final measurement

	Mean	Min	Max	SD	KV%	SE	Skew	Kurto	KS
Physical functioning	79.75	15.00	100.00	19.35	24,27	2.48	-1.57	2.14	p < .01
Role limitations due to physical health	98.36	75.00	100.00	6.24	6.34	0.80	-3.60	11.32	p < .01
Role limitations due to emotional problems	97.95	75.00	100.00	6.91	7.06	0.89	-3.13	8.03	p < .01
Energy/fatigue	74.92	35.00	100.00	15,26	20,37	1.95	-0.31	-0.44	p > .20
Emotional well-being	77.57	48.00	100.00	12.84	16.56	1.64	-0.61	-0.02	p < .15
Social functioning	82.99	37.50	100.00	16.46	19.84	2.11	-1.15	1.19	p > .20
Pain	79.75	32.50	100.00	17.97	22.54	2.30	-0.81	-0.12	p < .10
General health	54.92	10.00	95.00	18.85	34,33	2.41	-0.15	-0.18	p > .20

Table 3. Significance of differences of arithmetic means in the variables from the " SF-36 " questionnaire from the initial and final measurement

Variables	INITIAL		FINALLY		%	R	T-test	Sig
	Mean	SD	Mean	SD				
Physical functioning	59.84	22.08	79.75	19.35	33,29	0.78	-11,13	0.000
Role limitations due to physical health	40.98	27.02	98.36	6.24	140.00	0.16	-16.75	0.000
Role limitations due to emotional problems	43.72	28.89	97.95	6.91	124.06	-0.03	-14,16	0.000
Energy/fatigue	51.15	26.90	74.92	15,26	46,47	0.91	-12.80	0.000
Emotional well-being	56,66	22.76	77.57	12.84	36.92	0.84	-11.83	0.000
Social functioning	59.02	24.59	82.99	16.46	40.63	0.88	-14.67	0.000
Pain	58,65	23.75	79.75	17.97	35.99	0.90	-15.35	0.000
General health	50,41	21,20	54.92	18.85	8.94	0.95	-4.99	0.000

Graph 1. Differences of the arithmetic means in the variables of the " SF-36 " questionnaire from the initial and final measurement



In order to define the differences in the variables of the SF-36 health status assessment questionnaire from the initial and final measurement in , t-tests for dependent samples were applied. The results of the tests are shown in table 3. From table 3 it can be seen that between the initial and final measurement (before and after the end of the physiotherapy treatment and the exercise program) statistically significant differences were determined in all variables (physical functioning, role limitations due to physical health, role limitations due to emotional problems, energy/fatigue, emotional well-being, social functioning, pain and general health).

Discussion

The SF 36 generic questionnaire is useful for evaluating patients during and after the rehabilitation process (111). In this study, patients filled out a questionnaire at the beginning and after the end of treatment. Similar time intervals for follow-up of patients with low back pain have been used in other studies (80,185). In a study by Suarez-Almazor ME (2000), the quality of life of 46 patients with low back pain was followed at the first medical examination, after three and six months. Self-assessment included the application of the Oswestry, SF-36, Euro Qol (EQ-5D) and Health Utility Index (HUI) questionnaires. The condition of the patients was monitored over time in terms of improvement, deterioration or stable condition. In the aforementioned study, 54% of patients reported no change in their health status at the last test. The correlation between these instruments was low because they measured different domains of health, but the application of generic and disease-specific questionnaires provides a more complete picture of the patient's health status and overall quality of life (80).

The results of this research showed that between the initial measurement (before starting the physiotherapy treatment and exercise program) and the final measurement (after 15 days of physiotherapy and exercise program) we have significant changes in the health status and quality of life related to health. After the end of the physiotherapy treatment, among the respondents there was a change in the variable physical functioning by 33.29%, limitations due to physical difficulties 140.00%, limitations due to emotional difficulties 124.06% , energy and vitality 46.47%, mental health 36.92%, social functioning 40.63%, body pain 35.99% and perception of general health 8.94%. The greatest improvement in the quality of health was determined in the dimensions limitations due to physical difficulties and limitations due to emotional difficulties, while the smallest improvement was determined in the dimension perception of general health.

The SF-36 questionnaire tracks a number of subscales, with possible minor or major differences in numerical values obtained during measurement. The subscales of this questionnaire, especially those assessing physical pain and physical disability, can be useful indicators for distinguishing patients who will have a worse degree of recovery and later return to work during the treatment process (133). Bayer et al., (2016) on a sample of 38 respondents of both sexes, monitored the impact of low back pain on quality of life. Quality of life was assessed at the beginning of treatment, at the end of treatment, and the effects of treatment were monitored after three and six months. The values of the physical functioning subscale were 29.9 ± 7.4 at the beginning of the treatment; immediately after treatment 34.1 ± 7.6 , after three months 35.1 ± 7.5 and after six months 32.6 ± 7.5 . In the aforementioned study, a statistically significant improvement in quality of life as measured by the SF-36 questionnaire was confirmed immediately after treatment. The beneficial effects of kinesitherapy are maintained over the next three and six months (47). Boškovic K. et al. (2009) monitored health-related quality of life using the SF-36 questionnaire in 50 patients (33 men), during a conservative four-week inpatient treatment for lumbar radiculopathy. The values from the domain of physical health were low, i.e. 3.1 at the beginning of the treatment. In the following six months they were increased, and slightly decreased after a period of four years ($42.1/48.7/47.0$). All values of the quality of life were stabilized during six months. In the aforementioned study, the quality of life of patients with lumbar radiculopathy was reduced only in the domain of physical functioning, but improved during the following six months with conservative treatment. After four years, a slight decrease in the value of all parameters for the assessment of the quality of life was observed, during which it was concluded that a longer follow-up of the patients is necessary (189). In the research of Hung CI et al. (2015) on a sample of 225 subjects with chronic low back pain found a significantly higher degree of disability in the domain of physical functioning and emotional well-being, measured by the SF-36 questionnaire, compared to the other dimensions (subscales) of the questionnaire. Significantly lower scores on these scales have been observed in patients with higher levels of depression (181). In the research of Adorno MLGR et al. (2013) in a sample of 30 patients with chronic non-specific low back pain, aged 19 to 60 years, of both sexes, quality of life was assessed using the SF-36 questionnaire after kinesitherapy. In the mentioned research, the values of all the subscales of this questionnaire were lower compared to the testing carried out after the physical treatment, which indicates a positive effect of the rehabilitation treatment (190). In a study by Kumar S et al., (2010), on a sample of 141 subjects of both sexes, with lower back pain, the SF-36 questionnaire was used for evaluation. Physical functioning domain scores were better in male subjects treated with kinesitherapy compared to conventional physiotherapy procedures. This research points to the importance of movement therapy as a leading modality in the complex process of treating subacute and chronic back pain (191).

One of the possible factors for maintaining a poor quality of life in patients with lower back pain can be poor compliance (non-compliance) with regard to the doctor's recommendations for the application of protective positions and movements, premature return to the same workplace, interruption from the program of learned exercises after achieving the first relief of pain in patients, as well as the presence of numerous negative socio-epidemiological factors (low education, difficult physical jobs, job insecurity, older age, patients who are breadwinners and in the household, multiple members families etc.). Numerous socio-demographic factors individually or in combination can affect the quality of life of patients with lumbar syndrome. Understanding the influence of various factors on the course and treatment of the disease can contribute to more effective treatment and a better understanding of patients with low back pain. After the end of the physiotherapy treatment, the respondents experienced a change in the dimensions of physical functioning, limitations due to physical difficulties, limitations due to emotional difficulties, energy and vitality, mental health, social functioning, body pain and perception of general health.

Conclusion

Based on the obtained results, it can be concluded that between the initial measurement (before starting the physiotherapy treatment and exercise program) and the final measurement (after 15 days of physiotherapy and exercise program) there are significant changes in the health status and quality of life related to the health.

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