



Depression and sexual dysfunction in patients with chronic low back pain

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Abstract

Aim: Low back pain is pain, muscle tension, or stiffness localized below the costal margin and above the inferior gluteal folds, with or without leg pain (sciatica), and is defined as chronic when it persists for 12 weeks or more. Several studies have addressed the relationship between chronic low back pain and poor sexual activity for over two decades. This study was designed to clarify the relationship between depression and chronic low back pain in light of the information obtained from the literature review and examine how it affects sexual life.

Materials and Methods: Eighty people participated in the study. After signing the informed consent form, participants were examined by experienced physicians. Quebec Low Back Pain Scale, Beck's Depression Scale, and Arizona Sexual Experiences Scale (ASEX) were applied to the participants.

Results: As a result of the Mann-Whitney U test, which examined whether there was a significant difference in the Arizona Sexual Experiences Scale scores between the case group and the control group, there was a significant difference between the groups ($U=256.500$, $p<.001$). When the mean ranks were examined, it was seen that the case group had a higher ASEX score than the control group. In our study, it was found that there was a significant difference between the groups as a result of the Mann-Whitney U test, which was carried out to examine whether there was a significant difference between the Quebec score points between the case group and the control group. ($U=30.000$, $p<.001$).

Conclusion: In our study, it was observed that chronic low back pain significantly increased the level of depression and paved the way for functional losses in sexual terms. There is a moderate correction between a higher Quebec score and lower sexual satisfaction. It was found that there was a moderate relationship between Beck's depression score and sexual satisfaction. The 33-42 age group has higher Quebec scores than other age groups. It was found that there was no significant difference in scores between the groups according to gender, license degree, and marital status.



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Introduction

Low back pain is in the region between the twelfth rib and the inferior gluteal folds, with or without leg pain, and is a common musculoskeletal problem in society. It is the most common reason for hospital admission worldwide after upper respiratory tract infections [1].

Low back pain, which seriously restricts daily activities, is highly prevalent and severely impacts the health system. It is estimated that the total annual cost of back pain worldwide exceeds \$200 billion [2].

The etiology of low back pain is divided into five main categories: mechanical, degenerative, inflammatory, oncolog-

ical, and infectious. Spine, intervertebral disc or soft tissue injury, facet joint osteoarthritis, spinal stenosis, degenerative disc disease, inflammatory (seronegative) spondyloarthropathies such as ankylosing spondylitis, and bone marrow cancers can cause low back pain.

Age, obesity, educational status, psychosocial factors, satisfaction from the job, and professional factors affect the development of low back pain. Of these factors, age is the most important. In the studies conducted, it has been observed that low back pain development incidence is high in the third decade of life. On the other hand, the overall prevalence increases at 60 to 65 years. However, studies have also been published showing that the prevalence of low back pain increases in the adolescent age [3].

Depression is a common mental disorder. Globally, it is estimated that 5% of adults suffer from this disorder. It

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is characterized by a state of persistent sadness and a decrease in interest in previously enjoyable activities. Depression is a leading cause of disability worldwide and contributes significantly to the global burden of disease. The effects of depression can be long-term or recurrent and can significantly affect a person's ability to function and lead a rewarding life [4].

Sexual activity is one of the indicators of quality of life. Having and maintaining a sexual relationship is considered an integral component of a person's health by the World Health Organization. Various studies have examined the relationship between chronic low back pain and poor sexual activity for more than two decades. Low back pain is a condition that potentially affects sexual activity, especially when it is chronic. Existing pain and fear cause avoidance behaviors. This condition can also affect the quality and frequency of sexual activity. Such changes in sexual activity affect the patient's mood. It can lead a person to depression and anxiety [5].

This study was designed to examine the relationship between chronic low back pain and depression in light of the information obtained from literature reviews and how it affects sexual life.

Materials and Methods

Ethics approval for this study was obtained from the Health Sciences University, Gazi Yaşargil Training and Research Hospital Clinical Research Ethics Committee (Approval no: 24.12.2021/ 933). Patients with chronic low back pain who applied to our physical medicine and rehabilitation outpatient clinic between December 2020 and October 2021 were included in the study.

This study was planned cross-sectional. The patients and the control group signed the informed consent form, and a copy was given to them. The participants were examined after signing the informed consent form. Experienced physicians conducted the examination. The participants underwent neurophysiological testing, assessing cognitive functions (such as memory and attention). In addition, sensory-motor functions and back pain were evaluated. Electromyographic and radiological examinations were used during the examination. Demographic characteristics of the participants, such as age, gender, marital status, profession, education status, height, and weight, were recorded.

The study was attended by people aged 25-50 years. Patients with back pain for three or more days a week for at least three months are one of the criteria for participating in the study. In addition, those with unsuccessful lumbar surgery syndrome, those who had a whiplash (whiplash) injury at least three years ago, or those who had chronic non-traumatic neck pain were included in the study. The participants were allowed to continue the drug treatment they had started earlier. In addition, participants were not allowed to start a new treatment for six weeks before and during the study.

The study did not include those with neck or back surgery, neuropathic pain within three years, osteoporotic vertebral fractures, rheumatologic disease, chronic fatigue syndrome, and fibromyalgia syndrome.

The Quebec Low Back Pain Scale, Beck Depression Scale,

and Arizona Sexual Experience Scale (ASEX) were applied to the participants.

Quebec low back pain scale

The Quebec back pain disability scale (QBPDS) is a condition-specific questionnaire developed to measure the level of functional disability for patients with low back pain (LBP) that was designed, developed, and validated by Kopec et al. in 1995. This scale evaluates the difficulty of problems caused by low back pain with 20 different daily activities. The scoring is between 0 and 5. The score "0" is expressed as "not difficult at all", and the score "5" is expressed as "unable to do". The scores of the answers to all the questions are summed up, and a value from 0 to 100 is obtained. An increase in the total score indicates an excess of the existing insufficiency [6].

The results are analyzed into five categories such as mild, moderate, severe, very severe, and extreme. A score of 0-9 is mild, a score of 10-30 is moderate, a score of 31-54 is severe, a score of 55-75 is very severe, and a score of 76-100 is considered extreme. People who score from 0 to 30 are 1.6 times more likely to return to their former bodily functions within one year. People who score between 31 and 100 need advanced medical treatment. Their transition from the severe-very severe-extreme state to the moderated state indicates a substantial improvement in function [7].

The beck depression scale

Beck Depression Scale is a test that measures the attitudes and symptoms characteristic of depression, and the person evaluates himself. There are a total of 21 questions and four options for each question. Options get points from 0 to 3. The test was developed by Beck in 1961. The Beck Depression scale has been revised in different forms, including computerized forms and a card form [8]. Beck depression scale scores between 0 and 63. Those who score between 0-13 are evaluated as 'minimal', those with 14-19 points as 'mild', those with 20-28 points as 'moderate', and those with 29-63 points as 'severe' [9].

Evaluation of sexual function

Arizona Sexual Experience Scale (SEX) was developed by Dr. Cynthia McGahuey in 1997. It is a 5-question scale that measures the levels of sex drive, arousal, vaginal lubrication/penis erection, orgasm, and pleasure of orgasm. It takes a value from 5 to 30. A total score of more than 19 or 19 indicates sexual dysfunction [10].

Statistical analysis

Calculations were made with the SPSS 18 (SPSS, Chicago, Ill., USA). Kolmogorov-Smirnov test was used to evaluate whether the data were in accordance with the normal distribution. Comparisons between the groups were made using the independent samples t-test or the Mann-Whitney U test according to the suitability of the data for the normal distribution. The difference between the proportional variables was calculated using the Chi-square test. Spearman correlation analysis was used to examine

the relationship between sleep quality and disease activity. $p < 0.05$ and a 95% confidence interval were considered statistically significant.

Results

The mean score of the Quebec low back pain score obtained from all the participants included in the study was 39.6, and the standard deviation was 32.7. As a result of the Kolmogorov-Smirnov test performed to examine whether there is a significant difference between the Quebec score points between the case group and the control group, it was observed that the data were not normally distributed ($p < .05$). The table of the analysis is shared below (Table 1).

As a result of the Mann-Whitney U test conducted to examine whether there is a significant difference between the Quebec scores between the case group and the control group, it was found that there was a significant difference between the groups ($U = 30.000$, $p < .001$). When the mean ranks were examined, it was seen that the case group had a higher Quebec score than the control group.

A chi-square analysis was performed to examine whether there was a significant relationship between the case and control group in the distribution of Quebec results.

As a result of the chi-square analysis carried out to examine whether there is a significant relationship between the case group and the control group in the distribution of Quebec results, it was found that there was a significant relationship between the groups ($X^2 = 63.895$, $p < .001$). When the distributions were examined, the Quebec score of the case group was most at the extreme level (40%), followed by the highest at the very severe level (37.5%). In comparison, the majority of control group cases showed an accumulation at the mild (55%) and moderate (40%) levels.

The Beck score of Beck Depression Scale obtained from all the participants included in the study was found to have a mean score of 25.04 and a standard deviation of 18.5. As a result of the Kolmogorov-Smirnov test, which was conducted to determine the test to be conducted to examine whether there was a significant difference in Beck scores of the case group and the control group, it was found that the data were not distributed normally ($p < .05$). The table of the analysis is shared below (Table 2).

As a result of the Mann-Whitney U test conducted to examine whether there was a significant difference in Mann-Whitney U test scores of the case group and the control group, it was found that there was a significant difference between the groups ($U = 28.000$, $p < .001$). When the mean ranks were examined, it was seen that the case group had a higher Beck score than the control group.

A chi-square analysis was performed to examine whether there was a significant relationship between the case and control group in the distribution of Beck results.

As a result of the chi-square analysis carried out to examine whether there is a significant relationship in the distribution of Beck results between the case group and the control group, it was found that there was a significant relationship between the groups ($X^2 = 63.033$, $p < .001$). When the distributions were examined, it was seen that the Beck score of the case group was most at the level of

severe (67.5%), followed by at the level of most moderate (27.5%). In comparison, the majority of the control group cases showed an accumulation at minimal (62.5%) and mild (30%) levels.

All the participants' Arizona Sexual Experience Scale was 12.29, and the standard deviation was 7.4. As a result of the Kolmogorov-Smirnov test, which was carried out to determine the test to be carried out to examine whether there was a significant difference in the ASEX scores of the case group and the control group, it was observed that the data were not normally distributed ($p < .05$). The table of the analysis is shared below (Table 3).

As a result of the Mann-Whitney U test, which was carried out to examine whether there was a significant difference in ASEX scores between the case group and the control group, there was a significant difference between the groups ($U = 256.500$, $p < .001$). When the order averages were examined, it was seen that the case group had a higher ASEX score than the control group.

Pearson correlation analysis was performed to examine whether there was a significant relationship between the participants' Quebec, Beck, and ASEX scores. The analysis results are shared in the table below (Table 4).

As a result of the Pearson correlation analysis carried out to examine whether there is a significant relationship between Quebec, Beck, and ASEX scores; it was found that there was a significant positive correlation between Quebec score and Beck score ($r = .887$, $p < .001$) and a moderate positive correlation between ASEX score ($r = .680$, $p < .001$). A moderately significant positive correlation was found between the Beck and ASEX score ($r = .660$, $p < .001$).

As a result of the Kolmogorov-Smirnov test, which was carried out to determine the test to be carried out to examine whether there is a significant difference between the Quebec, Beck, and ASEX scores between age groups, it was observed that the data were not normally distributed ($p < .05$). The table regarding the analysis is shared below (Table 5).

As a result of the Kruskal Wallis H test, which was carried out to examine whether there is a significant difference in Quebec, Beck, and ASEX scores between age groups; there was no significant difference between the groups in ASEX score ($H = 5.178$, $p > .05$) and Beck score ($H = 3.940$, $p > .05$). Furthermore, a significant difference was found between the groups in Quebec scores ($H = 6.136$, $p < .05$). When the mean rank is examined, it is seen that the highest Quebec score is in the 33-42 age group, while the averages of the 25-32 and 43-50 age groups are at a similar level.

As a result of the Kolmogorov-Smirnov test, which was carried out to determine the test to be carried out to examine whether there was a significant difference between the groups in Quebec score, Beck score, and ASEX scores according to gender, it was observed that the data were not normally distributed ($p < .05$). The table regarding the analysis is shared below.

According to the results of Mann Whitney U analysis carried out to examine whether there is a significant difference between the groups in Quebec score, Beck score, and ASEX scores according to gender; there was no significant difference between the groups in Quebec score ($U = 676.500$, $p > .05$), Beck Score ($U = 610.000$, $p > .05$),

Table 1. Mann Whitney U Test conducted to examine Quebec Scores between the case group and the control group.

Group		N	Average of Ranks	Sum of Ranks	Mann-Whitney U	Z	p
Quebec Score	Case	40	59.75	2390.00	30.000	-7.412	0.000
	Control	40	21.25	850.00			
	Total	80					

Table 2. Mann Whitney U Test conducted to examine Beck Scores between the case group and the control group.

Group		N	Average of Ranks	Sum of Ranks	Mann-Whitney U	Z	p
Beck Score	Case	40	59.80	2392.00	28.000	-7.433	0.000
	Control	40	21.20	848.00			
	Total	80					

ASEX ($U=784.500$, $p>.05$) scores.

As a result of the Kolmogorov-Smirnov test, which was carried out to determine the test to be carried out to examine whether there is a significant difference between Quebec score, Beck score, and ASEX scores according to marital status, it was seen that the data were not normally distributed ($p<.05$). The table regarding the analysis is shared below. According to the results of Mann Whitney U analysis carried out to examine whether there is a significant difference between the groups in Quebec score, Beck score, and ASEX scores according to marital status; there was no significant difference between the groups in Quebec score ($U=735.000$, $p>.05$), Beck Score ($U=696.500$, $p>.05$), ASEX ($U=731.500$, $p>.05$) scores. As a result of the Kolmogorov-Smirnov test, which was carried out to determine the test to be carried out to examine whether there is a significant difference between the Quebec, Beck, and ASEX scores according to the undergraduate degree, it was observed that the data were not normally distributed ($p<.05$). The table regarding the analysis is shared below. According to the results of the Mann-Whitney U analysis carried out to examine whether there is a significant difference between the groups in the Quebec score, Beck score, and ASEX scores according to the undergraduate degree; there was no significant difference between the groups in Quebec score ($U=722.000$, $p>.05$), Beck Score ($U=661.000$, $p>.05$), ASEX ($U=749.000$, $p>.05$) scores.

Discussion

In this study, it was observed that chronic low back pain significantly increased the level of depression and paved the way for functional losses in the sexual sense. Many studies have reported that depression is the most common psychological disorder in patients with chronic pain. Chronic pain is frequently associated with depression and anxiety, leading to the loss of self-esteem of the patient [11,12]. In our study, in accordance with the literature, a significant difference was found between the groups as a result of the Mann-Whitney U test, which was conducted to examine whether there was a significant difference between the Quebec score points between the case group and the control group ($U=30.000$, $p<.001$).

In the study conducted by Dündar et al. [13], it was observed that the depression levels among the patients with

low back pain were higher than in the healthy control groups, and there was a significant decrease in the quality of life. In addition, these results were found to be very closely related to the pain and disability scores of patients with chronic low back pain. In the framework of our study, it was observed that the depression levels of patients with low back pain increased significantly compared to the control groups. In contrast, their pain scores increased, and there was a severe decrease in their quality of life.

It is observed that symptoms of depression often accompany patients with chronic low back pain. In this context, it has been observed in the studies conducted that the symptoms of depression in individuals with chronic pain are experienced much more frequently when compared to the healthy population. In addition, it has been revealed that the limitation of pain-centered functionality in patients with chronic low back pain and the resulting disability trigger depressive moods in patients, causing the feelings of sadness and pessimism to settle and the person's motivation to decrease too much [14,15]. Our study demonstrated that most patients with chronic low back pain had depressive symptoms.

In our study, as a result of the Pearson correlation analysis carried out to examine whether there is a significant relationship between Quebec score, Beck score, and ASEX scores; it was found that there was a significant positive correlation between Quebec score and Beck score ($r=.887$, $p<.001$), and a moderate positive correlation between ASEX score ($r=.680$, $p<.001$). A moderately significant positive correlation was found between the Beck and ASEX score ($r=.660$, $p<.001$).

In another study by Çetin et al. [16], it was found that all patients with chronic low back, neck, and knee pain had high levels of anxiety and depression, which negatively affected their quality of life; this supports the literature and this study. In addition, it has been revealed that the effects of chronic pain are very independent of the pain regions. In our literature review, we observed that the patient could live more comfortably by reducing the effects of chronic low back pain with the developing implant technology. For example, implant development can be done with the study of Korkmaz et al. to examine the proximity of the T12 vertebra to the thoracic aorta. This provides comfort to the patient [17].

Table 3. Mann Whitney U Test conducted to examine the ASEX Scores between the case group and the control group.

Group	N	Average of Ranks	Sum of Ranks	Mann-Whitney U	Z	p	
ASEX	Case	40	54.09	2163.50	256.500	-5.253	0.000
	Control	40	26.91	1076.50			
	Total	80					

Table 4. Pearson correlation analysis conducted to examine whether there is a significant relationship between Quebec, Beck, and ASEX Scores.

		Quebec Score	Beck Score	ASEX
Quebec Score	Pearson Correlation	1	.887**	.680**
	p		.000	.000
	N	80	80	80
Beck Score	Pearson Correlation	.887**	1	.660**
	p	.000		.000
	N	80	80	80
ASEX	Pearson Correlation	.680**	.660**	1
	p	.000	.000	
	N	80	80	80

**.01

Table 5. Kruskal Wallis H Test conducted to examine Quebec Score, Beck Score, and ASEX Scores by age.

Age	N	Average of Ranks	Kruskal-Wallis H	df	p	
Quebec Score	25-32	32	35.25	6.136	2	0.047
	33-42	23	50.46			
	43-50	25	38.06			
	Total	80				
Beck Score	25-32	32	37.41	3.940	2	0.139
	33-42	23	48.61			
	43-50	25	37.00			
	Total	80				
ASEX	25-32	32	35.84	5.178	2	0.075
	33-42	23	49.65			
	43-50	25	38.04			
	Total	80				

Conclusion

As a result, the case group has a significantly higher Quebec score than the control group. However, when the Quebec outcome score distributions were examined, it was observed that while the results of the case group were concentrated to severe levels, the control group had accumulated to low levels. The Beck score of the case group was higher than the control group. On the other hand, when the Beck score's result distributions were examined, it was seen that

the results of the case group showed a concentration of severe levels. In contrast, the control group results showed a concentration of low levels. The ASEX score of the case group was higher than the control group. It was observed that the sexual satisfaction of the case group was higher than that of the control group. There is a high correlation between the increase in the Quebec and Beck scores. There is a moderate correlation between higher Quebec scores and lower sexual satisfaction. It was found that there was a moderate relationship between Beck's depression score and sexual satisfaction. The 33-42 age group has higher Quebec scores than other age groups. It was found that there was no significant difference in scores between the groups according to gender, undergraduate, or marital status.

Limitations of the study

Considering the treatment conditions, the small number of patients is the limitation of the study.

Ethics approval

Ethics approval for this study was obtained from the Health Sciences University, Gazi Yaşargil Training and Research Hospital Clinical Research Ethics Committee (Approval no: 24.12.2021/ 933).

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