

## Research Paper

## Demographic, Health, and Sexual Determinants of Quality of Life of Women with Back Pain



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## ABSTRACT

**Purpose:** Low back pain is one of the most common musculoskeletal problems. Various complications, such as disability, depression, anxiety, sleep disorders, stress, decreased sexual function and Quality of Life (QoL) are associated with chronic low back pain.

The aim of this study was to compare the relationship between demographic, physical fitness, health status, socio-economic indicators, and sexual function indicators on the QoL of women with chronic non-specific low back pain.

**Methods:** The present cross-sectional study was performed in 2020 in the private center of Cyrus Physiotherapy in Tehran, Iran. Thirty married women with non-specific chronic low back pain who were sexually active and living in Tehran were included in the study based on inclusion and exclusion criteria. At first, the goals and process of the study were explained to them and they were given written consent to participate in the study. Then demographic information was recorded and pain, sexual function, and QoL were measured using relevant tools. SPSS software v. 22 was used for statistical tests. Pearson correlation test was used to examine the relationship between the above variables.

**Results:** The Mean±SD age of participants was 38.6±7.48 years. Pearson correlation coefficient showed no statistically significant relationship between the QoL with age ( $r=-0.172$ ,  $P=0.364$ ), the number of children ( $r=-0.166$ ,  $P=0.382$ ), pain intensity ( $r=-0.181$ ,  $P=0.339$ ) and regular exercise ( $r=-0.159$ ,  $P=0.402$ ), but there was a statistically significant relationship between QoL with body mass index ( $r=-0.406$ ,  $P=0.026$ ), sexual function score ( $r=0.379$ ,  $P=0.039$ ), general health status ( $r=0.436$ ,  $P=0.026$ ), education level ( $r=0.463$ ,  $P=0.010$ ), and physical fitness status ( $r=-0.406$ ,  $P=0.026$ ).

**Conclusion:** In women with chronic non-specific back pain participating in the present study, the lower the body mass index, the higher the level of education and sexual function score, the better overall health and physical fitness status, the better the QoL. However, the results of this study did not confirm the relationships between QoL and age, number of children, pain intensity, and regular exercise. Improving education, health status, fitness status, body mass index, and sexual function index help improve QoL.

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## Highlights

- Higher education level results in better QoL in women with low back pain.
- Improving health status, and physical fitness status help better QoL in women with low back pain.
- Normal body mass index, and better sexual function index help improving the QoL of women with low back pain.

## Plain Language Summary

Low back pain is one of the most common musculoskeletal problems. Various complications, such as disability, depression, anxiety, sleep disorders, stress, decreased sexual function and QoL are associated with chronic low back pain. The present study planned to compare the relationship between demographic, physical fitness, health status, socioeconomic indicators, and sexual function indicators on the QoL of women with chronic low back pain. This study was performed in 2020 in the private center of Physiotherapy in Tehran, Iran. Thirty married women with non-specific chronic low back pain who were sexually active and living in Tehran were included in the study. The Mean±SD age of participants was 38.6±7.48 years. This study showed that in women with chronic low back pain, the lower the body mass index, the higher the level of education and sexual function score, as well as the general health and physical fitness status, are related to better QoL.

### 1. Introduction

Chronic nonspecific low back pain is a major health problem worldwide [1]. In many countries, this complication is one of the most common causes of sick leave and causes high treatment costs for the person directly or indirectly [2]. In people with low back pain, in addition to feeling pain, the inability to perform the Activity of Daily Living (ADL), work and leisure activities is seen. These people face many changes in their lives, including changes in social activities and communication with people and even their families. Pain, disability, and unwanted changes in daily life can cause psychological stress, including depression, anger, and frustration, which will worsen or increase the pain in the spine [3].

One of the most important causes of disability following low back pain is the weakness of the muscles related to the back [4]. If the lumbar complication lasts for more than two weeks, it can lead to muscle weakness. Due to the improper condition of the muscles and the occurrence of pain during muscle activity, the person avoids using them. This process leads to muscle wasting and weakening, which in turn causes more pain and disability. Among the important muscles that work to support the spine and control intra-abdominal pressure are the abdominal, back, diaphragm, and pelvic floor muscles [5]. Pain and dysfunction of the above muscles, which play a pivotal role, and anxiety and disability, cause disorders in the state of physical, mental health, and physical fitness.

Low back pain can lead to various complications, such as disability, depression, anxiety, sleep disorders, stress, and decreased performance, including sexual function [3-9]. Many studies have shown the inability of people with low back pain to

perform daily activities [10]. Sexual activity is one of the most important individual activities and one of the most important aspects of a person's life that has been less studied due to intellectual and social limitations, while some studies have reported the negative impact of low back pain on these activities [11]. For example, among women with low back pain, 71.1% of women complained of impotence and 59.5% of men complained of erectile dysfunction [12]. Despite the high percentage of sexual dysfunction in people with low back pain, at the same time, in previous studies, less attention has been paid to the sexual function of these patients. One of the reasons for this can be the concerns of patients with chronic low back pain in expressing their sexual problems. Bahouq et al. [13] examined the concerns of patients with chronic low back pain about expressing their sexual problems to health professionals. One hundred sexually active patients with chronic low back pain were included in this study. Patients answered questions about disease profile and sex life. They also pointed out the obstacles to discussing sexual problems with experts and their expectations from the conversation. Factors affecting patients' expectations were analyzed.

Pain intensity was obtained based on the visual pain scale of 50±10.7. Eighty-one percent of patients complained of sexual problems, and sixty-six percent had never reported their sexual problems to health professionals. Barriers in this regard included the religious prohibition on sexual matters, the inadequate conditions for meeting a specialist, and the patient's lack of interest in sexual matters. Ninety-three percent of patients reported the need for counseling about sexual problems associated with chronic low back pain. Seventy-four percent of patients expected health professionals to show them appropriate pain-relieving postures. Thirty percent of patients expected their spouses to participate in the discussion, and 81 percent of patients preferred to consult with

same-sex specialists. According to the findings of this study, the most important factors limiting the relationship between patient and specialist were the reduction of sexual satisfaction and illiteracy [13].

Muscle weakness and pain can lead to sexual dysfunction, followed by stress, anxiety, and cold relationships with others, including a spouse. Following the disorder in emotional and spiritual relationships, such as boredom and depression, the disorder in the relationship between the individual and the family as the smallest community, especially the relationship with the spouse is overshadowed. Sexual dysfunction, in turn, can cause physical discomfort and/or aggravation of pain during intercourse and a significant reduction in the frequency of sexual activity [14-17]. Following the occurrence of sexual problems between couples, a gap is created between them and this, in turn, causes the emergence or aggravation of more mental and physical problems [3]. The impotence in chronic low back pain patients has been emphasized in previous studies and it may largely mediate the effect of pain on depression in these patients [9, 15, 17].

In the health system, Quality of Life (QoL) is a reflection of a person's health, including his physical, mental, and social health [18-22]. QoL summarizes the positive and negative aspects of life, and therefore, can be changed under the influence of illness, pain, and disability. According to the World Health Organization (WHO) definition, physical health, mental health, independence, relationships, and the environment, in which the person lives, are some factors that should be considered in assessing the QoL [23]. The aim of this study was to compare the relationship between demographic characteristics, health status, physical fitness, and socio-economic and sexual function indicators on the QoL in women with chronic non-specific low back pain.

## 2. Materials and Method

The present cross-sectional study was performed in 2020 in the private Cyrus Physiotherapy in Tehran, Iran. Thirty married women with non-specific chronic low back pain who were sexually active and living in Tehran were included in the study based on inclusion and exclusion criteria. The following inclusion and exclusion criteria were considered: married women with chronic non-specific low back pain, Persian-speaking cases, having sexual activity, no history of fracture or surgery, or structural deformities in the lumbar spine, thighs, and pelvis, lack of Coda Aquina Syndrome, being literate and comprehension of the questionnaire, participants' willingness to cooperate and participate in the research,

no cardiovascular disease, symptoms in the lower urinary tract, diabetes, depression, use of antidepressants, diseases affecting joint mobility and endurance of physical activities, joint inflammation, inflammatory diseases, infection, and tumor. People who did not want to cooperate or could not implement the study program were excluded from the study. The sample size was calculated based on similar studies [16, 17] with a 90% confidence level and 80% power, considering the sexual function index using G-Power software.

Before entering the study, the objectives and process of the study were explained to the participants and they were given written consent to participate in the study. Then, demographic information was recorded and pain, QoL, and sexual function were measured using relevant instruments. Pain, sexual function, and QoL were assessed using the Visual Analog Scale (VAS) [24], the Persian version of the Women's Sexual Function Questionnaire [25], and the Short QoL Questionnaire [26], respectively. The questionnaire was completed by the individuals themselves. Personal information was also collected through interviews and registration of demographic information forms.

In the present study, the relationship between demographic indicators (age, body mass index), indicators related to health and physical fitness (general health status, physical fitness status, habit of regular exercise, and severe pain), socio-economic indicators (education level, number of children), and sexual function and the QoL of women with chronic low back pain were evaluated.

### Tools

**Demographic information questionnaire:** This questionnaire contained information, such as age, height, weight, body mass index, level of education, assessment of the QoL, regular exercise, physical fitness, general fatigue, and assessment of health based on individual statements.

**VAS:** Pain assessment by VAS is a pain ruler that includes a horizontal line that is scaled from zero to ten; zero indicates absolute analgesia and ten indicates signs of unbearable pain [24].

**Sexual function assessment questionnaire:** Sexual function is how the body reacts at different stages of the sexual response cycle or as a result of sexual dysfunction. Physiological, psychological, social, and religious beliefs and ethical factors can affect sexual function. However, other factors, such as neuroleptics, obesity, diabetes, and

cardiovascular and musculoskeletal problems can also affect sexual function. This scale has been translated and validated using the Female Sexual Performance Scale as the gold standard for assessing female sexual function in more than 30 different countries. The questionnaire has 19 questions that measure sexual performance over the past four weeks in six independent areas: desire, psychological stimulation, moisture, orgasm, satisfaction, and sexual pain. This questionnaire has good validity and reliability. Regarding the scoring method, according to the questionnaire designer's instructions, the scores of each domain were obtained by adding the scores of the questions of each domain and multiplying them by the invoice number (since in the FSFI questionnaire, the number of domain questions is not equal to each other). First, in order to weigh the fields together, the scores obtained from the questions of each field are added together and then multiplied by the invoice number. The questions are in the areas of 1) desire (1-5), 2) sexual arousal, 3) vaginal moisture, 4) orgasm, 5) pain (5-0), and 6) sexual satisfaction (5-1 or 0). A score of zero indicates that the person has not had sexual activity in the last four weeks. By adding the scores of the six areas together, the total score of the scale is obtained. In this way, the scoring is such that a higher score indicates better sexual function. Based on the equivalence of the domains, the maximum score for each domain is six and for the whole scale is 36. The minimum score for the area of sexual desire is 1.2, for sexual arousal, vaginal moisture, orgasm, and pain is zero, for the area of satisfaction is 0.8, and for the whole scale, the minimum score is two [25, 26].

**The Quality of Life questionnaire (SF-36):** QoL assessment was performed with the SF-36 (short form). This scale has long been used as a valid and reproducible tool in different patients to determine the level of QoL. It has two parts: physical health summary and mental health summary. Also, this scale includes eight separate subscales: physical function, role reduction due to physical problems, pain, general health, life force, social

function, and decreased roleplaying due to mental health problems. All subscales are scored between zero and 100 as standard and a higher score indicates better health status [27, 28]. The validity and reliability of the above tools have been shown in previous studies [24-28].

**Statistical method:** IBM SPSS software v. 22 was used for statistical tests. Central inclination and dispersion indices were used to describe the quantitative data. Pearson correlation coefficient was used to examine the relationship between variables.

### 3. Results

The Mean±SD age of participants was 38.60±7.48 years. Table 1 shows the descriptive findings related to the quantitative variables of the study participants.

Table 2 shows the descriptive findings related to the qualitative variables of the study participants. As shown in the table, 80% of them had a diploma to a bachelor's degree and 96.7% of them did not exercise regularly, while 50% of them described their physical condition as almost good. Also, 76.7% of the study population felt general fatigue and 46.7% of them assessed their health condition as almost good.

Based on the results presented in Table 3, Pearson correlation coefficient showed no statistically significant relationship between the QoL with age ( $r=-0.172$ ,  $P=0.364$ ), the number of children ( $r=-0.166$ ,  $P=0.382$ ), pain intensity ( $r=-0.181$ ,  $P=0.339$ ) and regular exercise ( $r=-0.159$ ,  $P=0.402$ ), but there was a statistically significant relationship between QoL with body mass index ( $r=-0.406$ ,  $P=0.026$ ), sexual function score ( $r=0.379$ ,  $P=0.039$ ), general health status ( $r=0.436$ ,  $P=0.026$ ), education level ( $r=0.463$ ,  $P=0.010$ ), and physical fitness status ( $r=-0.406$ ,  $P=0.026$ ).

**Table 1.** Descriptive findings related to quantitative variables of women studied (N=30)

Variables	Mean±SD	Min	Max
Age (Y)	38.60±7.48	25.0	52.0
Body Mass Index (Kg/m <sup>2</sup> )	28.77±5.48	21.01	45.03
Sexual function index	24.90±4.61	10.08	30.08
Pain index	7.40±1.94	5.0	10.0
QoL index	52.16±18.51	10.50	87.19

**Table 2.** Frequency of the qualitative variables (n=30)

Variable	Available Scenarios	No.(%)
Number of children	0	3(10.0)
	1	25(83.3)
	2	2(6.7)
Level of education	Under diploma	5(16.7)
	Diploma and post-diploma	19(63.3)
	Bachelor's degree and higher	6(20.0)
Physical fitness status	So bad	1(3.3)
	Bad	5(16.7)
	Almost good	15(50.0)
	Good	7(23.3)
	Very good	2(6.7)
Perform regular exercise	Yes	1(3.3)
	No	29(96.7)
health status	Very bad	1(3.3)
	Bad	8(26.7)
	Almost good	14(46.7)
	Good	5(16.7)
	Very good	2(6.7)

PHYSICAL TREATMENTS

As shown in Table 3, regarding the QoL, the higher correlation coefficients were related to education level, health status, physical fitness status, body mass index, and finally, sexual performance index, respectively.

#### 4. Discussion

The purpose of this study was to investigate the relationship between demographic indicators (age and body mass), health and physical fitness (general health status, physical fitness status, habit of regular exercise, and intensity of pain), social indicators (level of education and number of children) and sexual function score with the QoL of women with chronic non-specific low back pain.

The results of this study showed that in women with non-specific chronic low back pain participating in the present study, the higher the level of education and sexual function score, the better overall health and fitness status, the better the QoL and the physical status. However, the results

of this study did not confirm the relationship between QoL and age, number of children, pain intensity, and regular exercise. QoL, respectively, showed a stronger relationship with education level, health status, physical fitness status and body mass index, and finally sexual performance index.

In line with the results of the present study, Blane et al. examined the relationship between QoL and aging. The results of their study showed that most older people evaluated their QoL based on social relationships, dependence, health, material conditions, and social comparisons and increasing age had no effect on the QoL [29].

Studies have shown a complex relationship between body mass index and Health-Related Quality of Life (HRQoL) - and wellness. In many previous studies, in line with the results of the present study, obesity has been associated with decreased QoL, even when comorbidities have been controlled, but some studies have

**Table 3.** Pearson correlation coefficients between the QoL questionnaire scores and related variables (n=30)

Variable	Pearson Correlation Coefficient (r)	P-Value
Sexual function index	0.379	0.039
Level of Education	0.463	0.010
Number of children	-0.166	0.382
Physical fitness status	0.406	0.026
Intensity of pain	-0.181	0.339
Body Mass Index (BMI)	-0.406	0.026
Age	-0.172	0.364
Health status	0.436	0.016
Regular exercise	-0.159	0.402

PHYSICAL TREATMENTS

shown that being overweight has been associated with improved QoL [30-35].

In line with the results of the present study, Jakobsson et al. in 2002 conducted a review of pain and QoL in the elderly with rheumatoid arthritis and osteoarthritis. The results of this study showed that pain increases only in the group with rheumatism with age and the duration of the disease. In both groups of patients, pain, movement limitations and aging were effective in reducing the QoL. The results showed that social support is effective in increasing the QoL in patients with osteoarthritis but has no effect on the QoL of patients with rheumatism [36].

Sar et al. examined the effects of pelvic floor muscle strengthening on QoL, stress, and combined urinary incontinence. Forty-one women with a range age of 40-50 years participated in the study. These individuals were divided into two groups of intervention and control. The intervention group was asked to perform three sets of muscle contraction exercises daily, slowly and rapidly in three positions: lying down, sitting, and standing. The training period lasted eight weeks. Once a week, people in the control group were contacted by phone to increase their motivation to practice. In this study, the results were evaluated using a questionnaire to assess the QoL in women with urinary incontinence, the number of bladder leaks every three days were recorded, and also the one-hour pad test and pelvic floor muscle strength measurements were used. The results obtained from the evaluations showed that there was a significant change in the intervention group compared to the control. Based on this study, strengthening the pelvic floor muscles has an effect on improving the QoL and reducing the incidence

of incontinence [37]. The results of this study are in line with the present study.

In 2010, McDonald et al. examined the association between musculoskeletal pain and sexual function. The researchers showed that musculoskeletal disorders, such as low back pain and rheumatic diseases due to pain, joint dryness, and muscle fatigue can affect sexual function. Exercise by patients can be effective in reducing these symptoms, which in turn can improve the QoL of these patients [38]. The result of this research agrees with the present research.

In 2011, Lin et al. examined the effects of yoga on the mental health and physical well-being of cancer patients and found that yoga could be a potential adjunctive therapy for cancer patients to help control psychological distress and improve QoL [39]. The results of this study are somehow in line with the results of the present study as it was shown that the better health and physical fitness are associated with high QoL; however, the results of the present study did not confirm the relationship between QoL and the habit of regular exercises.

Similar to the results of the present study, Bahouq et al. in 2013 [13] examined the sexual desire of patients with chronic low back pain in Morocco. These researchers showed that low back pain in patients with chronic low back pain has a profound effect on sexual desire and QoL. They showed that the quality of sexual life of these people had a significant relationship with age, duration of low back pain, pain, sexual function, and decreased frequency of sexual intercourse. Because these people are afraid of sexual intercourse, this fear would reduce

sexual desire and the frequency of sexual intercourse in this group of people with low back pain. In this study, women lost more interest in sexual activity than men. The researchers found that being overweight also causes sexual problems in people with low back pain. Obesity had no significant relationship with disturbance in patients' QoL. The results showed that men suffered more from sexual problems than women [40, 41]. In this study, similar to the present study, QoL and sexual function in patients with chronic low back pain were evaluated. The results of both studies indicate the importance of the role of musculoskeletal pain in reducing the QoL.

Also, similar to the results of the present study, Horng et al. showed a significant relationship between QoL and the severity of pain and disability. According to the researchers, other factors that affect the QoL are physical and mental health, income status, and physical strength. Functional and psychological conditions were shown to have the greatest impact on the QoL [42]. In the study by Horng et al. and also in the present study, physiotherapy was an effective method to improve the QoL of people with low back pain.

Similar to the results of the present study, Camacho et al. concluded that sexual dysfunction affects the QoL of individuals. They stated that two factors, disease, and age, can cause sexual dysfunction in the elderly. The researchers showed that sexual desire and decreased vaginal moisture were more common in the elderly due to the side effects of medications. Age, obesity, level of education, neuroleptics, acute and chronic diseases, osteoarthritis, and diabetes can affect sexual function and sexual dysfunction and also affects the QoL [43].

Other researchers, such as Kovacs et al. examined the association between pain and disability and QoL in patients with low back pain and did not report a strong association between low back pain and QoL. They showed that the duration of low back pain had a greater effect on the QoL of patients with low back pain than the severity of pain. In this study, most patients had acute and sub-acute low back pain [44].

Contrary to the results of the present study, Horng et al. in 2005 [42] showed that there was a significant relationship between QoL and the severity of pain and disability. According to the researchers, other factors that affect the QoL include physiotherapy, the use of herbal medicines, psychological and income status, and physical strength. They showed that functional and psychological conditions have the greatest impact on QoL [40]. In the present study, chronic pain and differences in the

interventions in reducing pain can cause differences in the research results.

In many cases with low back pain, dysfunction of the pelvic floor muscles has been shown. The results of the present study on the relationship between pelvic floor muscle function and QoL in women with low back pain are in line with the results of the study by Ptak et al. in 2019. Ptak et al. examined the effect of strengthening the pelvic floor muscles on the QoL of women with stress incontinence and its relationship with the number of deliveries. They showed that patients who, in addition to pelvic floor muscle exercises, also strengthened the transverse abdominal muscle, had a better QoL than those who only strengthened the pelvic floor muscles [45]. In the study by Ptak et al. and the present study, strengthening the transverse abdominal muscle plus pelvic floor muscles was performed, which can be a reason for improving the QoL in both studies [45].

Also, the results of our study are similar to the results of a study by Redzminska et al. In this study, the effect of strengthening the pelvic floor muscles on the QoL of women with urinary incontinence was examined in a systematic review and it was observed that the QoL of these patients improved [46]. Also, the results of our study are similar to the results of a study conducted by Rogers et al. in 2017. In this study, pelvic floor muscle function and QoL in postmenopausal women with or without sexual dysfunction were examined and it was observed that the QoL in women with pelvic floor dysfunction was significantly lower than in the opposite group [47].

Compared to some mental disorders, it has been observed that chronic low back pain affects mental and physical health [48]. Chronic pain disorder is often associated with disruption of daily activities, disability, unemployment, psychological disorders, and drug abuse [49]. Patients with chronic low back pain had a higher percentage of musculoskeletal pain, neuropathic pain, depression, anxiety, and sleep disorders than the control group [50]. Identifying the impact of risk factors associated with low back pain on QoL can help control these factors and improve QoL. At the same time, research has shown that chronic low back pain, even by controlling comorbidities and other forms of chronic pain, affects a person's sense of well-being physically and mentally. Low back pain is associated with poor QoL. Even after controlling for demographic factors and comorbidities, this association with physical and mental health remained. It was found that low back pain causes a low level of functioning and QoL [51].

## 5. Conclusion

Overall, the results of this study showed that in women with chronic non-specific back pain participating in the present study, the lower the body mass index, the higher the level of education and sexual function score, the better overall health and physical fitness status, the better the QoL. However, the results of this study did not confirm the relationship between QoL and age, number of children, pain intensity, and regular exercise. QoL, respectively, showed a stronger relationship with education level, health status, physical fitness status, body mass index, and finally, sexual function index.

### Clinical application

1. Improving education, health status, fitness status, body mass index, and sexual function index help improve the QoL.
2. The relationship between age, number of children, pain intensity, and regular exercise with the QoL was not confirmed.

### Study restrictions and suggestions

In the present study, multidimensional standard questionnaires were used to assess the QoL and sexual function. But participants' self-reported reports were used to measure pain and health, fitness, and exercise habits. It is suggested that in future studies, objective tools be used to measure these cases. In this study, the correlation coefficients indicated a moderate correlation, which may be due to the limited number of volunteers participating in the study. Many patients refused to participate in the study due to individual and social constraints on determining their sexual function. If the study involves more people, a stronger connection may be shown. The present study included only the female population, it is suggested to compare the two sexes. If comprehensive information is available from a larger population, a regression model can be presented from the collective effect of several influential factors.

### Ethical Considerations

#### Compliance with ethical guidelines

This study was reviewed and approved by the Ethics Committee of the [University of Social Welfare and Rehabilitation Sciences](#) (Ethics Code: IR.USWR.REC.1399.083).

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### Authors' contributions

All authors equally contributed to preparing this article.

### Conflict of interest

Authors have no conflict of interest.

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