

## Low Back Pain Intensity and Quality of Life among Patients referred to a Pain Clinic in Iran

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### ABSTRACT

**Aims:** Low Back Pain (LBP) is a major contributor to disability worldwide which affected the Quality of Life (QOL). This study aimed to determine the correlation between pain intensity and QOL in patients with chronic LBP.

**Method and Materials:** In this study, 31 patients with LBP who referred to a pain clinic in Sari, the center city of Mazandaran province of Iran were selected through simple random sampling based on inclusion/exclusion criteria. Data collection was done using a demographic questionnaire, Visual Analog Scale (VAS), and Short Form Quality of Life (SF-36). To analyze the data, descriptive / analytical statistics were used through SPSS version 23.

**Findings:** Of the total number of patients, 51.62% were female (n=16), and 48.38% were male (n=15). The majority of the participants (N=22; 70.97%) aged greater than 60 years old. The result showed the majority of the participants (N= 17) of patients (54.85%) had moderate pain. There was a significant correlation between pain intensity and all dimensions of QOL except social functioning.

**Conclusion:** This study revealed that low back pain could decrease physical and mental functioning of the suffered patients. Although, doing more studies with larger sample and objective measurements, applying different approaches to decrease low back pain is guaranteed.

**Keywords:** Low Back Pain, Pain Intensity, Quality of Life, Patient

### Introduction

Low Back Pain (LBP) refers to pain and discomfort localized in the lumbosacral region, with or without radiating leg pain. This pain is between the costal margins and the inferior gluteal folds, which is usually accompanied by movement limitation <sup>[1]</sup>. In 2013, WHO estimates the prevalence of LBP about 60-70% in industrialized countries <sup>[2]</sup>. In 2015, the global point prevalence of activity-limiting LBP was 7.3%, implying that 540 million people were affected at any time. Low back pain is now the number one cause of disability globally <sup>[3]</sup>. It has been estimated that about 70 % of people in developed countries experienced LBP during their lives <sup>[4,5]</sup>. The largest increases in disability caused

by LBP in the past few decades have occurred in low-income and middle-income countries, including in Asia, Africa, and the Middle East, where health and social systems are poorly equipped <sup>[6]</sup>.

It has been argued that the prevalence of LBP among general population is between 60 and 80% <sup>[7,8]</sup>. Low back pain is an extremely common symptom experienced by people of all ages <sup>[9-11]</sup>.

Globally, LBP is among the highest contributors to disability and it is ranked as a reason of Years Lived with Disability (YLD) <sup>[3, 12]</sup>. In other words, LBP is the leading cause of YLD in both developed and developing countries, and sixth in terms of overall disease burden (disability-adjusted life-years) <sup>[13,14]</sup>. The key contributors

to LBP and disability include comorbidities, social factors, psychological factors, genetic factors, and biophysical factors <sup>[11]</sup>.

The prevention strategies for LBP can be mentioned to exercise, education and self-care, back belt, shoe insoles, ergonomic interventions at the workplace, ergonomic school furniture, yoga, cognitive behavioral therapy, massage, etc <sup>[15-17]</sup>.

It has been demonstrated that LBP is one of the main reasons for seeking medical care and it causes an enormous medical and economic burden on individuals, families, communities, industry, and governments <sup>[18]</sup>. LBP can also affect physical function and quality of life (QOL) and lead to decreased function and QOL <sup>[5,19]</sup>.

Quality of life is the general well-being of individuals and communities, outlining negative and positive aspects of life. It observes life satisfaction, including all aspects from physical health, family, education, employment, wealth, safety, security to freedom, religious beliefs, and the environment <sup>[20]</sup>. In general, it can be pointed out that back pain affects all aspects of life such as physical, financial, spiritual, and psychological, which leading to a lowers QOL<sup>[21]</sup>.

Studies discussed that there is correlation between pain intensity and QoL. It means, that the increased intensity of pain could be resulted in less physical function of the individuals and affected on their mental / social and general health <sup>[22,23]</sup>.

In this study we aimed to investigate the relationship between the intensity of pain and QOL in patients with chronic LBP in a pain clinic. The findings of this study could help support existed evidences.

### Method and Materials

The participants were the population suffering from non-specific LBP referred to a pain clinic in Sari the center of Mazandaran

province in north of Iran. Based on the inclusion and exclusion criteria, we screened 65 patients with LBP, of which 34 patients were excluded. The inclusion criteria in this study were as being suffered from LBP (female and male) , referring to pain clinic in Sari from November to December 2019 and agreed to participate in the study by signing the informed consent. The exclusion criteria were suffering from pathological LBP, spondylosis, and other visceral pain.

The sampling technique in this study carried out randomly and based on patients' code until the number of subjects reached 31 patients. Data collection was done using a demographic questionnaire include (age, gender, married status), Visual Analog Scale (VAS), and Short Form Quality of Life (SF-36). Pain intensity measured through interviews using the VAS. The VAS is a well-known measure of pain intensity <sup>[24]</sup>, which has been widely used in different adult populations <sup>[25]</sup>. It is a continuous scale comprised, usually 10 centimeters (100 mm) in length, anchored by 2 verbal descriptors ranging from none (score of 0) to worse condition (score of 100) <sup>[25,26]</sup>. The VAS measurements were from painlessness (0-4 mm), mild pain (5-44 mm), moderate pain (45-74 mm), and severe pain (75-100 mm). In this study, we used a 100mm straight line to assess pain intensity utilizing the usual anchors.

Quality of life is a concept related to one's physical health, psychological state, level of independence, social relationships, personal beliefs, and relation to the environment. This variable is measured through interviews using the short form quality of life (SF-36) questionnaire. SF-36 consists of 36 items tapping into eight subscales: Physical Functioning (PF), Role Physical (RP), Bodily Pain (BP), General Health (GH), Social Functioning(SF), Vitality (VI), Role Emotional (RE) and Mental Health(MH). The value obtained is in the range of 0-100%

where the higher the value, the better QOL [27]. The questionnaire has been validated in Iran [28].

Descriptive statistics (i.e., frequency, percentage, mean, and standard deviation) was applied. The normal distribution of numeric variables was assessed with the Shapiro-Wilk test. Pearson’s correlation test on normal distribution value and Spearman’s correlation test on abnormal distribution value were used. The analysis of data was done using IBM SPSS software version 23.0.

Findings

Of the total number of patients, 51.62% were female (n=16), and 48.38% were male (n=15). The majority of the participants aged greater than 60 years old in both gender (Table 1).

Table 1) General characteristics of the studied participants

Variables	N=31	%
<b>Gender</b>		
Male	13	41.94
Female	18	58.06
<b>Age</b>		
< 60	9	29.03
≥ 60	22	70.97
<b>Married Status</b>		
Single	1	3.23
Married	24	77.42
Divorced	2	6.45
Widow	4	12.9

Table 2 shows the pain characteristics in the VAS value. (mean = 6.71, SD = 2.06). Correlation between pain intensity and QOL demonstrated a correlation between VAS and physical function, limitations due to physical problems, limitations due to emotional problems, vitality, the feeling of pain, general

health, and mental health. But there was no connection between VAS and social function. The correlation between pain intensity and QOL is presented in Table 3.

Table 2). Characteristics of pain intensity of the studied participants

Variables	Mean	SD
VAS	6.71	2.06
	N=31	%
Painlessness	0	0
Mild Pain	8	25.8
Moderate Pain	17	54.85
Severe Pain	6	19.35

Table 3) Correlation between pain intensity and quality of life in studied participants.

Dimension of Quality of Life	VAS	
	r	P
Physical Functioning	-0.612	<0.001 <sup>a</sup>
Role Physical	-0.861	<0.001 <sup>b</sup>
Bodily Pain	0.483	0.01 <sup>a</sup>
General Health	-0.350	0.030 <sup>a</sup>
Vitality	-0.463	0.006 <sup>a</sup>
Social Functioning	-0.245	0.12 <sup>b</sup>
Role Emotional	-0.436	0.004 <sup>b</sup>
Mental Health	-0.480	0.001 <sup>a</sup>

<sup>a</sup>Pearson’s Correlation Test

<sup>b</sup>Spearman’s Correlation Test

Discussion

This study aimed to investigate correlation between pain intensity and QOL in chronic LBP patients referred to pain clinic in Sari. Chronic LBP diagnosis was performed through physical and neurological examination by chiropractor and orthopedist. The most patients were female (58.06%) and aged over than 60 years old (70.97%). Ste-

fane study et al. (2013) showed of 97 LBP patients, 67 women (69.07%) and 30 men (30.93%) were aged more than 60 years old [29]. As well, in similar studies, the proportion of female was higher than male, and most participants were aged over 60 years old [5,30]. These data revealed that LBP is more prevalent among female and elderly people. The results of present study showed 54.85% of patients had moderate pain and 25.8% suffered from mild pain. Previous studies demonstrated an appropriate educational intervention can help patients to promote their preventive health behaviors and decrease their LBP [31-35].

Evidences showed pain intensity affected the QOL and could decrease it [31,36]. In this study, findings extracted from the SF-36 questionnaire displayed that there was a significant correlation between pain intensity and almost all of the QOL dimensions except social functioning. These results are supported by Nasution' study et al. (2018). The difference was that in Nasution' study, pain intensity was associated with all dimensions of QOL except mental health [5]. Shim' study et al. (2014) compared LBP groups with healthy groups and found significant correlation between pain severity and physical function, social function, vitality, bodily pain, general health, limitations due to economic problems, and role physical [37] that supported our findings. While However, Nasution et al. (2018) found a relationship between pain severity and mental health but not significant [5]. The mental health element is a valid assessment of mental status and is useful for screening for psychiatric disorders. The total QoL score in the Zahra' study et al. (2020) was low in 77.5% of the studied sample and there was a highly significant negative correlation between the total QOL score and total back pain of the studied sample. That means LBP continues to be a common disease [21].

Importantly, both physical and mental health is linked with chronic back pain. Back pain is associated with reduced QOL, and a significant relationship with chronic back pain was found among all measures of physical and mental health [38]. Similarly, Demirtas' study (2013) was carried out regarding the effects of LBP on QOL and functional impairment in nurses suffering from LBP [39]. The nurses who had more pain intensity had significantly worse scores of functional disability, general health, physical function, role physical, social function, and bodily pain domains of SF-36 compared to nurses who had less pain intensity.

Since LBP causes many health-related problems affecting on not only the patient's physical state but also all aspects of their lives, such as mood and health-related QOL. Therefore, health-related quality of life is an important outcome of health in different aspects of physical, mental, and social dimensions. In this regard, improving the QOL through education is an essential issue for health educators. A better understanding of the association between back pain and health-related QOL could facilitate the implementation of new intervention approaches to the prevention and treatment of back pain.

Although this study has strength points, there are some limitations which could effect on its findings. One of the limitations of this study was self-reporting of patient's pain perception that has been subjective and might be the obtained results are not appropriate. As well, the small sample size was another limitation should be considered. Therefore, doing further studies about assessing the relationship between pain intensity and QOL are strongly recommended.

## Conclusion

This study revealed that low back pain could decrease physical and mental functioning



of the suffered patients. Although, doing more studies with larger sample and objective measurements, applying different approaches to decrease low back pain is guaranteed.

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### Authors' contribution

SSK was the main investigator, collected and analyzed the data, and wrote the first draft of the manuscript. MR contributed to the writing process. RP contributed to provide the final draft of manuscript. All authors read and approved the final manuscript.

### Conflicts of Interests

No conflict of interest has been declared by the authors.

### Ethical permission

The ethics committee approval was obtained from the pain clinic of Bu Ali Hospital, Sari. All participants were satisfied to entered into the study and completed a written consent form.

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