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Relationship Between Symptom Distress, Functional Status and Quality of Life in Patients with Low Back Myofascial Pain Syndrome

Yamin Zhao[1], Qian Shen[1], Xizi Yang[1], Xueting Zhang[1], Conghe Huo[1], Bobo Meng[1], Haimei Ren[2]*

[1]Department of Endocrinology, Affiliated Hospital of Hebei University, Baoding 71000, Hebei Province, China

[2]Department of Orthopedics, Affiliated Hospital of Hebei University, Baoding 71000, Hebei Province, China

Corresponding author: Haimei Ren, 15830796601@126.com

Abstract: *Objective:* To explore the relationship between symptomatic functional status and quality of life of patients with low back myofascial pain syndrome (MPS). *Methods:* From July 2021 to June 2022, 106 patients with low back myofascial pain syndrome in the Affiliated Hospital of Hebei University were selected as the research subjects. A total of 106 MPS patients were investigated with general information questionnaire, Memory Symptom Assessment Scale (MSAS), Oswestry Disability Index (ODI) and Short Form Questionnaire (SF-36). The relationship between quality of life and symptom distress and dysfunction was observed and analyzed based on symptom distress and dysfunction scores, SF-36 scores, and so on. *Results:* The total score of MSAS was 1.79 ± 0.91. The overall symptom distress of the patients was moderate. The ODI score was 18.46 ± 5.95. The functional disability of the patients was classified as moderately impaired. The MSAS-PHYS, MSAS-PSYCH, MSAS-GDI three scale scores were 2.14 ± 0.75, 1.69 ± 0.88, 1.55 ± 0.46, respectively, and the variability of the three scales is relatively large; the dimension scores were significantly lower than those of the conventional scoring models, and $P < 0.05$, indicating a statistical difference; the scores of each dimension of the patient's quality of life were compared with the scores of symptom distress and functional status. The higher the symptom distress score, the lower the quality of life, with $P < 0.05$, indicating a statistical difference; the higher the score of each dimension of functional status, the better the quality of life, showing a positive correlation, and $P < 0.05$, indicating a statistical difference. *Conclusion:* MPS patients face a number of physical and psychological symptoms, and their functional status is limited. Nursing staff should implement health education and intervention measures according to the actual situation of the patients, so as to improve the quality of their lives.

Keywords: Low back myofascial pain; Functional status; Quality of life

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1. Introduction

Myofascial pain syndrome is a common pain disorder. Although it can involve a wide range of pain points in the body, lower back pain is the most common clinical symptom, and the pain is more significant. The myofascial is triggered by factors such as cold, fatigue and incorrect posture for a long time, which will lead to local adhesion or spasm of the myofascial or skeletal muscle. A series of symptoms such as referred pain lead to the limitation of joint mobility, which has a great impact on the health and normal life of patients [1-2]. In recent years, with the changes in people's living and working styles, the incidence of this disease has been increasing, and the disease has been shown to affect younger and younger populations [3].

At the same time, with the continuous development of medical technology, especially the wide application of traditional Chinese medicine in clinical practice, there are more and more treatment methods for low back myofascial pain syndrome, such as acupuncture and massage. Myofascial Pain Syndrome (MPS) is a chronic disease characterized by muscle stiffness, numbness, acid swelling and pain, which can be caused by a variety of pathogenic factors (such as physical and chemical injury, exogenous cold, acute and chronic lumbar muscle strain, etc.). Its incidence rate is increasing year by year, reaching as high as 30%–93% [4-8]. Low back myofascial pain syndrome can lead to functional impairment that not only affects the individual's daily life, but also has a large impact on emotion, sexual function, and the ability to perform leisure and occupational activities. Although patients with lumbar myofascial pain syndrome face symptom distress and functional impairment, few empirical studies have focused on this aspect. Hence, a survey is specially conducted to better understand the symptom distress and the variable factors related to the quality of life in patients with low back myofascial pain syndrome, and the report is as follows.

2. Materials and methods

2.1. General information

106 patients with low back myofascial pain syndrome in the Affiliated Hospital of Hebei University were selected as the research subjects from July 2021 to June 2022. The inclusion criteria were as follows: (1) diagnosed with myofascial pain syndrome based on clinical diagnostic criteria and also according to the diagnostic criteria Traditional Chinese Medicine; (2) patients without mental and cognitive dysfunction; (3) patients with obvious stiffness and pain in the lower back for the past 3 months or more, with frequent occurrence; (4) those who gave informed consent and voluntarily participated in this investigation. Exclusion criteria: (1) patients suffering from other diseases that affect daily activities (such as heart, cerebrovascular diseases); (2) Patients suffering from other major physical or psychological diseases (such as neurological and cerebrovascular diseases, tumors, lumbar disc herniation, spinal stenosis, and mental patients); (3) pregnant or lactating women.

2.2. Methods

A questionnaire survey method was adopted, and the specific contents are as follows:

2.2.1. General information

General information includes the patients' gender, age, height, weight, smoking status, education level, pain level, and so on.

2.2.2. Memory Symptom Assessment Scale (MSAS)

The Memory Symptom Asssessment Scale (MSAS) includes 32 items in three subscales: Physiological Symptoms (PHYS), Psychological Symptoms (PSYCH), and Global Symptom Distress Index (GDI).

The incidence, frequency, severity, and distress of MPS physical and psychological symptoms were assessed. A 4-point or 5-point scoring system was used. The study demonstrated good reliability and validity, with an internal consistency of 0.87.

2.2.3. Oswestry Disability Index Questionnaire (ODI)

The Oswestry Disability Index (ODI) has 10 items, each with 6 alternative answers, on a scale of 0–5, with 0 (no pain at all or no functional impairment), 5 (extreme pain or the most severe disability). After the corresponding scores of the 10 items were accumulated, the percentage of the total score (50 points) was calculated. The higher the score, the more severe the patient's disability.

2.2.4. Short Form Questionnaire (SF-36)

The Short Form Questionnaire (SF-36) contains 36 items and 8 dimensions: physiological function (RP), physiological function (PF), physical pain (BP), vitality (VT), social function (SF), role emotional (RE), general health (GH) and mental health (MH). It is the most suitable scale for evaluating the quality of life of patients with low back pain, with the highest internal consistency, validity, and responsiveness.

2.3. Observation indicators

Symptom distress and dysfunction, SF-36 score and quality of life were observed and analyzed.

2.4. Statistical methods

SPSS22.0 statistical software was used to input data; general descriptive statistics, t test, ANOVA, Pearson correlation analysis, and multiple regression analysis were used for statistical analysis.

3. Results

3.1. General information survey results

There were 106 patients eligible for inclusion, including 59 male patients and 47 female patients, accounting for 55.7% and 44.3%, respectively. The age, pain score, smoking index, and body mass index were 38.23 ± 11.6, 28.78 ± 6.88, 17.56 ± 5.65, 22.12 ± 1.32, respectively. Among these patients, 76 of them received standard treatment and could be followed up regularly, and 30 patients did not receive standard treatment, as shown in **Table 1**.

Table 1. General information survey results

Project	Basic situation
Sex: Male	59 (55.7%)
Female	47 (44.3%)
Currently receiving standard treatment: Yes	76 (71.7%)
No	30 (28.3%)
Age (years old)	38.23 ± 11.6
(Simple McGi II) Pain Score	28.78 ± 6.88
Smoking Index (packs/year)	17.56 ± 5.65
Body mass index (kg/m^2)	22.12 ± 1.32

Note: Smoking index: Smoking pack. Years = daily smoking volume (sticks) / smoking time (years)

3.2. Symptom distress and functional disability status score

Through survey analysis and scale testing, we found that the total MSAS score was 1.79 ± 0.91, the overall symptom distress of the patients was moderate, and the ODI score was 18.46 ± 5.95. The patient's dysfunction status is classified as moderately impaired, and the scores of the three scales of MSAS-PHYS, MSAS-PSYCH, and MSAS-GDI are 2.14 ± 0.75, 1.69 ± 0.88, 1.55 ±0.46, respectively. The variability of the three scales is relatively large, as shown in **Table 2** for details.

Table 2. Symptom distress and dysfunction scores

Project	Minimum	Maximum value	Score
Overall MSAS score	0	2.99	1.79 ± 0.91
MSAS-PHYS	0	2.99	2.14 ± 0.75

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Project	Minimum	Maximum value	Score
MSAS-PSYCH	0	2.56	1.69 ± 0.88
MSAS-GDI	0	1.99	1.55 ± 0.46
ODI score	4	32	18.46 ± 5.95

3.3. Comparison of the scores of each dimension of the SF-36 scale in MPS patients with the domestic norm

MPS patients who received standard treatment was compared with 2249 patients using the conventional scoring model. The scores of PF, RP, BP, GH, VT, SF, RE and MH in SF-36 of MPS patients were 65.56 ± 24.95, 58.34 ± 10.67, 59.43 ± 17.93, 53.13 ± 22.32, 60.93 ± 22.86, 53.45 ± 20.72, 59.67 ± 24.87, 67.53 ± 17.89, respectively. The scores of PF, RP, BP, GH, VT, SF, RE and MH of the conventional model SF-36 scale were 90.62 ± 15.40, 79.51 ± 34.70, 85.61 ± 18.37, 69.55 ± 21.32, 70.29 ± 17.07, 86.85 ± 17.28, 76.45 ± 34.47 and 72.65 ± 16.81 respectively. The scores of each dimension of the SF-36 scale of MPS patients were significantly lower than those of the conventional model, and $P < 0.05$, there is a statistical difference, as shown in **Table 3**.

Table 3. Comparison of SF-36 scale scores in MPS patients with domestic norm

Dimension	MPS patients	Norm	*t* value	*P* value
Number of cases	76	2249	-	-
PF	65.56 ± 24.95	90.62 ± 15.40	13.600	0.000
RP	58.34 ± 10.67	79.51 ± 34.70	5.309	0.000
BP	59.43 ± 17.93	85.61 ± 18.37	12.229	0.000
GH	53.13 ± 22.32	69.55 ± 21.32	6.593	0.000
VT	60.93 ± 22.86	70.29 ± 17.07	4.642	0.0 00
SF	53.45 ± 20.72	86.85 ± 17.28	16.457	0.000
RE	59.67 ± 24.87	76.45 ± 34.47	4.207	0.000
MH	67.53 ± 17.89	72.65 ± 16.81	2.606	0.009

3.4. Correlation between quality of life, symptom distress and functional status

The study showed that the scores of each dimension of patients' quality of life were compared with the scores of symptom distress and functional status. The higher the score of symptom distress, the lower the level of patients' quality of life, showing a negative correlation trend, and $P < 0.05$, indicating a statistical difference; the higher the score of each dimension of functional status, the better the quality of life, showing a positive correlation trend, and $P < 0.05$, indicating a statistical difference, as shown in **Table 4**.

Table 4. Pearson correlation analysis of quality of life, symptom distress, and functional status (r value)

Clinical indicators	PF	RP	BP	GH	VT	SF	RE	MH
Overall MSAS score	-0.68**	-0.66**	-0.75**	-0.69**	-0.61**	-0.68**	-0.64**	-0.65**
MSAS-PHYS	-0.74**	-0.68**	-0.81**	-0.65**	-0.52**	-0.59**	-0.56**	-0.61**
MSAS-PSYCH	-0.59**	-0.53**	-0.62**	-0.64**	-0.54**	-0.61**	-0.60**	-0.70**
MSAS-GDP	-0.73**	-0.81**	-0.77**	-0.82**	-0.79**	-0.84**	-0.78**	-0.60**
ODI	-0.82**	-0.42**	-0.71**	-0.15*	-0.10*	-0.18*	-0.21*	-0.14*

Note: $^*P<0.05$, $^{**}P<0.01$

4. Discussion

MPS refers to the chronic injury of soft tissues such as lumbosacral muscles, fascia, and ligaments, and is a common disease in recent years. Its symptoms interfere with all aspects of life. Even in today's advanced medical technology, the prevalence of MPS continues to increase, with a long course of disease, numerous symptoms, and impaired functional status. Quality of life is a more accurate parameter in assessing the health status of MPS patients [9-11].

Symptom distress refers to the abnormal state of the patient's body due to the occurrence of the disease, and the physical and psychological pain caused by it. Symptom impacts the patient's functional status and quality of life greatly. The most common distressing symptoms of MPS patients are pain, fatigue, sleep disturbance and many other physical symptoms. The degree of distress of psychological symptoms is directly affected by the degree of distress of physical symptoms, which not only aggravates anxiety and depression, but also induces psychological symptoms like stress, worry, irritability, helplessness, and powerlessness, making patients even less confident. By understanding the physiological and psychological symptoms of patients, better coping strategies and rehabilitation treatment can be formulated and improve quality of life [12-16].

The MPS patients mostly suffers from moderate pain, but the pain intensity was positively correlated with the ODI index, indicating that the stronger the pain, the higher the dysfunctionality. The results of this study show that the 8 dimensions of the overall quality of life of MPS patients are lower than the general population, indicating that the quality of life of MPS patients is poor. This study shows that higher symptom distress leads to greater functional dysfunction and has a serious impact on quality of life. Besides, this study found that anxiety and depression are important factors affecting the quality of life of patients. The higher the patient's symptom distress score, the lower the patient's quality of life; the higher the score of each dimension of functional status, the better the quality of life. The overall level of symptom distress of the patients was moderate, and the functional impairment of the patients was moderate. The variability of the three scales, MSAS-PHYS, MSAS-PSYCH, and MSAS-GDI, was relatively large.

5. Conclusion

In conclusion, dysfunctionality is closely related to the quality of life of MPS patients. Therefore, nursing staff should also emphasize on effective symptom control in clinical work. MPS patients face a number of physical and psychological symptoms, and their functional status is limited. Nursing staff should implement targeted health education and intervention measures based on the actual situation of the patient, so as to improve his/her quality of life.

Disclosure statement

The authors declare no conflict of interest.

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