

## Sense of social support in chronic pain patients

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**Abstract.** Statistical data show that one in five adults of the European citizen suffer from some type of chronic pain. One of the most common types of chronic pain is chronic low back and neck pain. Emotional factors are currently viewed as important determinants in pain perception and behaviour. The perceived social and emotional support have impact to the individual's adaptation to chronic disease (Cohen, Wills, 1985). The material: 110 chronic low back pain (CLBP) patients (48 male and 62 female; in age from 24 to 60 years, mean: 44.2±8, 0) and pilot study of 23 chronic neck pain (CNP) patients (19 female and 4 male; in age from 35 to 60 years, mean: 48, 1 ±6. The assessment methods: structured interview; Hospital Anxiety and Depression Scale (HADS). SF-36® Health Survey: assessment of emotional and social support. Results and conclusions: CLBP patients in presence of symptoms of depression and elevated level of anxiety matched for socio-demographic features had less sense of social support and marked pain impact to daily activities, lower self rating health relating quality of life. In CLBP patients the sense of social and emotional support had relevant interaction with level of participation in daily activities both in patients with and without mental health problems. This fact has to be considered in process of rehabilitation and in managing of health care of CLBP patients. The results of CNP patients pilot study revealed interesting trend that chronic back and neck pain patients seems to be quite different according to sense of social and emotional support, therefore sense of social and emotional support in different chronic pain patients need further research to improve the process and results of rehabilitation in these patients.

**Key words:** *social and emotional support, chronic pain, participation, quality of life*

European Federation of International Association for Study of Pain (EFIC) has made the declaration on chronic pain as a major healthcare problem, a disease in its own right. Statistical data show that one in five adults of the European citizen suffer from some type of chronic pain. One of the most common types of chronic pain is chronic low back and neck pain. Spine disease is one of the most common causes of disability and absence from work (13% of the total sick-leave time) and one of the most common reasons that people seek healthcare (10% of the number of all visits to doctor) (Manek, 2005; Nachemson, 2000).

The individual's adaptation to chronic disease has been related to perceived social support (Cohen, Wills, 1985). It is hypothesized that social support may affect well-being in two different ways. Firstly, the main effect hypothesis proposes that social resources may have a beneficial effect on adjustment, irrespective of the level of stress. Secondly, the buffer effect hypothesis proposes that social support is only beneficial for persons under stress. Emotional factors are currently viewed as important determinants in pain perception and behaviour. Psychological processes are not merely a reaction to pain, but they are an integral part of pain perception. (Keef et al., 2004; Gatchel et al., 2001; Waddell, 2004). Low back pain is a chronic disorder which exerts a profound impact on various spheres of psychosocial functioning, including emotional distress, functional limitations and decrements in social contacts (Janowski et al., 2010).

### **The aim of the study**

To analyse the sense of social and emotional support and its interaction with level of participation in daily activities and work and health related quality of life in patients with chronic pain syndrome.

### **Material and methods**

#### *The material*

There were included all patients who were admitted to the rehabilitation centre during study time and correspond to *the study inclusion criteria*: patients with primary complaint about low back pain in duration >3 months (clinical diagnosis after ICD-10 classification: M 51.1.) whose age was from 18 to 60 years and who agrees to participate in the study. There were excluded those patients, who had some of the study *exclusion criteria*: additional disease and/or traumatic injury, which causes a functional limitation; somatoform disorder (after ICD-10 classification: F 45) or another psychiatric additional disease; spinal pathology, which is connected with infectious process, autoimmune or metabolic disorder, traumatic injury, neoplastic process (primary tumour or metastases) or internal organ pathology; congenital spine disorders and spine development anomaly; *cauda equina* syndrome; spinal stenosis (clinical manifestation or radiological findings); previously carried out spine surgery; pregnancy and less than 2 years after childbirth.

As a result, in the study were enrolled and analysed 103 chronic low back pain (CLBP) patients: 43 (41,7%) male and 60 (58,3%) female. The age of patients ranged from 24 to 60 years, mean age  $45,3 \pm 8,1$  years.

Additionally were analysed data from *pilot study* of chronic neck pain patients: were included all patients who were admitted to the rehabilitation department during study time and corresponded to *the study inclusion criteria*: clinical diagnosis of cervical spine disk pathology with radiculopathy (ICD-10 classification: M50.1) and primary complaint about neck pain in duration >3 months, with or without irradiation, in age from 18 to 60 years and who agrees to participate in the study, did not met any of the study exclusion criteria (as mentioned above).

As a result, were analysed data of 23 chronic neck pain (CNP) patients: 19 (82,6%) female and 4 (17,4%) male; in age from 35 to 60 years, mean:  $48,1 \pm 6,2$  years.

#### *The methods*

Complex assessment was made to all included patients in first 48 hours after admission, by mean of the study assessment methods: 1) *Structured interview*; 2) *Hospital Anxiety and Depression Scale* (HADS) was used to assess the level of anxiety and depressive symptoms (Zigmond, Snaith, 1983). (In the study was used Latvian version of the scale. The license and the translation from the National Foundation for Educational Research); in the pilot study Latvian version of HADS had shown good internal consistency and reliability (Cronbach's alpha 0.892). 3) *SF-36® Health Survey* (Ware et al., 1993, 2000) was used to assess eight dimensions of health related quality of life.(In the study the Latvian version of the questionnaire was used (permission for use of the Latvian language translation from QualityMetric); in the pilot study Latvian version of SF-36 had shown good internal consistency and reliability (Cronbach's alpha 0.982); 4) *Assessment of social and emotional support* – sense of social and emotional support was evaluated by assessment of perceived social and emotional support from seven support achievement sources. The patient was asked to evaluate each of them by a seven-point Likert scale (0 – completely disagree, 6 – completely agree). Four statements were related to family / friends / work/ groups of social activities. But three issues were related to how much the patient feels support from health care professionals (family doctor / other doctor/ other medical staff). Higher scores indicated a greater sense of social and emotional support.

**Table 1.** Sense of support (mean value (M), standard deviation (SD)) in studied patients.

<i>Sense of support from:</i> <i>M</i> ± <i>SD</i>	CLBP patients with symptoms of depression and anxiety	CLBP patients without symptoms of depression and anxiety	CNP patients with symptoms of depression and anxiety
Family	3,2 ± 1,7	5,2 ± 1,6	4,8 ± 1,7
Friends	3,5 ± 1,4	5,4 ± 0,7	4,9 ± 1,3
Work	3,1 ± 1,7	4,8 ± 1,4	2,9 ± 1,9
Social groups	3,4 ± 1,8	4,2 ± 1,8	3,1 ± 1,6
Family doctor	3,8 ± 2,2	5,3 ± 0,9	4,9 ± 1,0
Other doctor (neurologist)	3,7 ± 1,9	5,4 ± 1,0	3,9 ± 2,2
Other health care specialist	3,4 ± 2,6	4,9 ± 2,2	4,5 ± 1,2

The study was conducted in compliance with ethical principles (in accordance with the Helsinki Declaration). There is positive statement of Ethics Committee for the study.

#### *The statistical methods*

Data processing was done using the computer program Microsoft Excel and SPSS. To analyze the general characteristics of the patients, there were used descriptive statistics (mean values, standard deviation, minimum and maximum values). For assessment of interaction correlation analysis were used by calculating Spearman correlation coefficients between the individual indicators. To assess the reliability of the average difference between two independent groups independent sample t test analysis were used. The statistical analysis rejected the null hypothesis and accepted the alternative hypothesis if the test of materiality levels were less than 5% ( $p < 0.05$ ).

## **Results**

### *Emotional state*

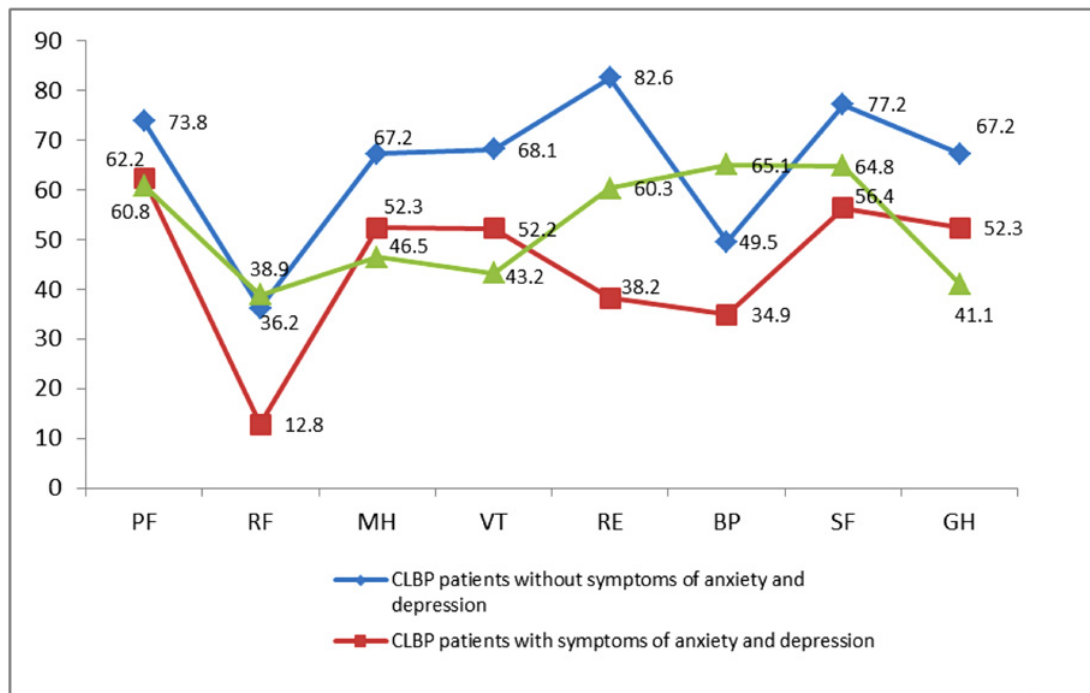
Analysis of results presented what 35 (34%) of all CLBP patients were characterized by clinically significant depressive symptoms and elevated anxiety levels (depression and anxiety levels after HADS  $\geq 7$  points), but the others 68 (66%) have not expression of these symptoms.

Clinical subgroups after emotional state – CLBP patients with and without symptoms of depression and elevated anxiety levels – have not revealed any diversity neither by gender or mean age, neither according to education level, employment status, workplace risk factors or marital status.

All CNP patients had manifestation of elevated anxiety levels and clinically significant depressive symptoms. CNP patients had more female gender proportion and more current unemployment status, in comparison with CLBP patients ( $p < 0,05$ ).

Analysis of results showed that in CLBP patients with symptoms of depression and elevated level of anxiety, in comparison with CLBP patients without such symptoms, were observed less sense of social and emotional support from all analysed support achievement groups (reliable difference for all sources of support according to test t results,  $p < 0,05$ ) (Table 1).

Results revealed the trend that CNP despite the presence of anxiety and depressive symptoms had more sense of support from family and friends in comparison with CLBP patients with anxiety and depressive symptoms (reliable difference according to t test: family:  $t = 1,86$ ,  $p = 0,01$ ; friends:  $t = 1,88$ ,  $p = 0,014$ ). But sense of support from work and groups of social activities in CNP patients



**Figure 1.** Mean results of SF-36 dimensions (physical activities (PF), participation due to physical health (RF) or emotional state (RE), mental health (MH), vitality (VT), impact of pain syndrome to daily activities (BP), social interactions (SF), general health perception (GH) in studied patients.

was similar low as CLBP patients with anxiety and depressive symptoms, and less than in CLBP patients without symptoms of anxiety and depression ( $p < 0,05$ ).

Results showed the trend of difference between CLBP patients with elevated level of anxiety and clinically significant depressive symptoms and CNP patients with the same symptoms in mean value of sense of support from health care providers (family doctor:  $t = 1,56$ ,  $p = 0,04$ ; other health care provider:  $t = 1,88$ ,  $p = 0,03$ ).

#### *Health related quality of life*

CLBP patients with symptoms of depression and anxiety and less sense of support had lower scores on self rated quality of life after SF-36 in comparison with CLBP patients without such symptoms, difference was reliable in all dimensions (according to t test results,  $p < 0,05$ ) (Figure 1).

Results showed the trend that in CNP patients pain syndrome had less impact to daily activities as in CLBP patients ( $p < 0,05$ ), but CNP patients more frequently had rated their general health status as poor in comparison with CLBP patients ( $p < 0,05$ ). Also, results demonstrated that CLBP patients with anxiety and depression symptoms had marked restriction in level of participation due to physical state (RF) in comparison with CLBP patients without anxiety and depressive symptoms and CNP patients with manifestation of mentioned symptoms (reliable difference according to t test,  $p < 0,05$ ).

#### *Analysis of correlations:*

In all analysed CLBP patients *sense of social support from family, friends, work and activities groups* correlated with self rated mental health (after SF-36) ( $R = 0,532$ ,  $p = 0,025$ ), participation due to

emotional state ( $R = 0,612$ ,  $p = 0,005$ ), social interactions ( $R = 0,442$ ,  $p = 0,025$ ) and impact of pain syndrome to daily activities ( $R = 0,322$ ,  $p = 0,032$ ; in CLBP patients with symptoms of depression and anxiety  $R = 0,521$ ,  $p = 0,011$  and in CLBP patients without such symptoms  $R = 0,366$ ,  $p = 0,023$ ). *Sense of support from health care professionals* in all analysed CLBP patients correlated with impact of pain syndrome to daily activities ( $R = 0,413$ ,  $p = 0,012$ ; in CLBP patients with symptoms of depression and anxiety  $R = 0,601$ ,  $p = 0,008$  and in CLBP patients without such symptoms  $R = 0,331$ ,  $p = 0,033$ ), level of physical activities ( $R = 0,421$ ,  $p = 0,017$ ) and social interactions ( $R = 0,392$ ,  $p = 0,030$ ).

Results showed different trends of interaction in *CNP patients*: participation due to pain syndrome has inverse correlation between sense of support both from family, friends, work, social activities group ( $R = -0,46$ ,  $p = 0,032$ ) and from health care providers ( $R = -0,51$ ,  $p = 0,037$ ); *no* relevant ( $p < 0,05$ ) correlations between participation due to emotional or physical state and sense of support. Similar with CLBP was correlation between social interactions and sense of support from health care providers ( $R = 0,41$ ,  $p = 0,024$ ) (but was not found relevant correlation between sense of support from family, friends, work).

## Discussion and conclusions

Due to increase of chronic back pain and disability caused by it since 20-ties it is called the social epidemic, the cause of which has been related to cultural and psychosocial factors, as no relevant biological pathology changes are observed (Waddel, 2004; Keef et al., 2004; Linton, 2005; Freburger et al., 2009; Nachemson, 2000).

Results of our study confirmed that CLBP patients in presence of symptoms of depression and elevated level of anxiety matched for socio-demographic features had less sense of social and emotional support and marked pain impact to daily activities, and lower self rating health relating quality of life.

It is well established that mental health problems have very high rates of prevalence and they have adverse effects on many areas of people's lives, including educational performance, employment, income, personal relationships and social participation. Also, there is evidence that promoting positive mental health benefits physical health by improving overall health (Benyamini et al., 2000), stroke incidence and survival (Ostir et al., 2001), protection from heart disease (Keyes, 2004). Positive affect may also provide a stress buffering effect that helps people to cope (Steptoe, 2008).

Results of our study confirm that the sense of social (emotional) support is important factor that contribute to the level of participation in daily activities and work and health related quality of life in patients with chronic low back pain.

The individual's adaptation to chronic disease has been related to perceived social support (Cohen, Wills, 1985). From other studies it is hypothesized that social support may have a beneficial effect on adjustment, irrespective of the level of stress. Our study of chronic low back pain patients revealed that sense of social and emotional support has relevant interaction with level of participation in daily activities (as well in work and social interactions) both in patients with and without mental health problems.

This fact has to be considered in process of rehabilitation and in managing of health care of chronic low back pain patients.

The results of chronic neck pain pilot study revealed interesting trend that chronic back and neck pain patients seems to be quite different according to sense of social support and its relationship between level of activities and participation, therefore sense of social support in different chronic pain patients need further research to improve the process and results of rehabilitation in these patients.

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