

ORIGINAL REPORT

DETERMINANTS OF SATISFACTION WITH INDIVIDUAL HEALTH IN MALE AND FEMALE PATIENTS WITH CHRONIC LOW BACK PAIN

Karin Pieber, MD¹, Katharina Viktoria Stein, PhD², Malvina Herceg, MD¹, Anita Rieder, MD², Veronika Fialka-Moser, MD¹ and Thomas E. Dorner, MD²

From the ¹Department of Physical Medicine and Rehabilitation, Medical University of Vienna, General Hospital of Vienna and ²Institute of Social Medicine, Centre for Public Health, Medical University of Vienna, Vienna, Austria

Objective: To examine health satisfaction and its predictors in subjects with and without chronic low back pain.

Subjects: Data for subjects aged 15–64 years were sourced from an Austrian representative population-based nationwide survey including 6,194 men and 6,183 women.

Methods: Health satisfaction and its determinants were assessed using the World Health Organization Quality of Life Questionnaire-Short Form (WHOQOL-BREF).

Results: Prevalence of chronic low back pain was 8.0% (range 7.6–8.3%; 95% confidence interval (CI)) in men and 8.8% (range 8.5–9.2%) in women. The proportion of men, with and without chronic low back pain, who were dissatisfied with their health was 22.5% and 5.7% ($p < 0.001$), respectively, and in women 28.3% and 5.4% ($p < 0.001$), respectively. In subjects with chronic low back pain a multivariate analysis revealed “not needing medical treatment to function in daily life” with odds ratio (OR) (95% CI) of 6.3 (2.6–15.3) and 4.2 (2.1–8.5) as the strongest predictor for health satisfaction in men and women, respectively. In men additionally “satisfaction with one’s sex life” and “satisfaction with work capacity”, OR: 6.6 (2.9–14.8) and 3.7 (1.5–9.3) were predictors for health satisfaction. In women, however “satisfaction with living conditions” OR: 3.7 (1.7–7.9) was an additional predictor.

Conclusion: Important determinants for health satisfaction are aspects of life such as independence and managing daily activities. These aspects can be influenced by existing therapy options.

Key words: dorsal pain; contentment; determinants; quality of life; sexual satisfaction.

J Rehabil Med 2012; 44: 658–663

Correspondence address: Thomas Ernst Dorner, Institute of Social Medicine, Centre for Public Health, Medical University of Vienna, Rooseveltplatz 3, AT-1090 Wien, Austria. E-mail: thomas.dorner@meduniwien.ac.at

Submitted August 17, 2011; accepted April 2, 2012

INTRODUCTION

Pain syndromes are a common health problem. Prevalence of chronic pain in Europe varies between 12% and 30%. Pain is the most frequent cause of healthcare utilization (1–4) and is

the most common cause of loss of productivity (5, 6). The most common body location for chronic pain is the back (6), and low back pain (LBP) is a major cause of disability (7).

Patients with LBP report problems concerning functioning, activity and participation in daily routines. These complaints can be described with the International Classification of Functioning, Disability and Health (ICF), which was developed by the World Health Organization (WHO) (8) to provide a common language to facilitate comparisons of health conditions in various contexts. Functioning describes categories such as pain, mobility or sleep. Activity can be described with categories such as activities of daily living, moving around, or doing housework, while participation is represented by engaging in work or employment, among other categories. Mental or emotional functions, such as anxiety, depression, demanding working conditions, job dissatisfaction, mental stress at work and negative body image, are important factors associated with LBP (9). In addition, the wide spectrum of social and environmental factors, especially concerning work and employment, are important influencing factors for pain in general (10), and for LBP in particular (11). Impairments in interpersonal interactions, recreation, and participation in community life are also considered relevant in patients with LBP (12). Many of these factors are included in the Comprehensive ICF Core Set for LBP (11) or the WHO Quality of Life Questionnaire-Short Form (WHOQOL-BREF) (13).

A complete absence of pain is not usually attainable for patients with chronic LBP, but is also not expected by them. Adequate and comprehensive information on therapeutic possibilities, as well as respect and understanding from their social environment are much more important to pain patients (14). There is a complex interrelationship between pain, disability, general health, and quality of life (QoL) in patients with musculoskeletal pain (15). Impairments in the performance of activities of daily living (ADL), health satisfaction and patient preferences are therefore important indicators to operationalize health in these subjects.

Although there is extensive literature on QoL and LBP the factors predicting satisfaction with health in patients with chronic LBP have not been studied in detail. Questions of possible sex- or gender-specific differences within LBP patients and differences with regard to the general population without chronic LBP also remain unanswered. The aim of this study

was therefore to answer these questions on the basis of a large population-based, representative sample, including subjects with and without chronic LBP.

METHODS

The database used in this analysis was the Austrian Health Interview Survey (AT-HIS) 2006–2007 (16). The survey was commissioned by the Austrian Federal Ministry of Health, Family and Youth (Bundesministerium für Gesundheit, Familie und Jugend) and was carried out by Statistics Austria, the national statistics agency. This survey represents a repeatedly performed micro-census of a representative sample of the entire Austrian population, regardless of their health status, with the aim of gaining knowledge of subjective health, QoL, health behaviour, and utilization of the healthcare system. To achieve a maximum of representativeness the sample was stratified by geographical region, with the same number of subjects being included from each region. The subjects were interviewed between March 2006 and March 2007 by trained interviewers. The gross sample size was 25,130 people, aged over 15 years. The response rate was 63.1%. The interviews were conducted face-to-face using computer-assisted personal interviewing (CAPI). The questionnaire was designed based on the European Core Health Interview Survey (EC-HIS) (17, 18) and was adapted for Austria by an expert panel. In order to account for the stratification of the sample, the data were weighted by geographical region, age, and sex. For our analysis, only those subjects with an age between 15 and 64 years were included. Thus, the sample included in our studies comprised 6,194 men and 6,183 women.

Regarding pain, the subjects were asked “Did you suffer from severe pain in one or more than one body site during the last 12 months?”. If the answer was “yes” the responders were shown a picture of the body, with 14 different body sites identified and asked to indicate the region or regions in which they experienced the pain. Finally, the subjects were asked “Have you already had pain for longer than 3 months?” separately for each indicated body site where pain was experienced. Subjects who indicated having had pain for more than 3 months in the dorsal area of the lumbar or sacral spine were classified as patients with chronic LBP.

Satisfaction with individual health and determinants of satisfaction were assessed using the WHOQOL-BREF (13, 19), German version (20). Using this tool the individual’s perceptions concerning health and satisfaction with health in the context of their culture and value systems, their personal goals, standards and concerns were evaluated. The tool comprises one item regarding QoL in total (“How would you rate your quality of life?”), one item regarding satisfaction with one’s own health (“How satisfied are you with your health?”), and 24 items that measure the domains physical health, psychological health, social relationships, and environment. All 26 items are rated on a 5-point Likert scale (1: “very poor”, “very dissatisfied”, “not at all”, “never” and 5: “very good”, “very satisfied”, “an extreme amount”, “extremely”, “completely”, “always”) (18). Standard processing of the WHOQOL-BREF was performed, measuring QoL in all 4 dimensions (18).

For statistical analysis SPSS Statistics 17.0 was used. Bivariate analyses were undertaken by means of cross-tabulation, and group differences were assessed with the Pearson’s χ^2 -test. A general logistic model was applied and age-adjusted means for the values in each dimension of QoL in patients with and without chronic LBP were computed. For analysis of the influence of each single item of the WHOQOL on health satisfaction, all variables of the WHOQOL-BREF were dichotomized, such that when a health determinant applied to a subject either “extremely”, “rather” or “fairly” it was coded 1 and when a health determinant was indicated by the subjects to apply “little” or “not at all”, it was coded 0. The dichotomized question in the WHOQOL-BREF regarding satisfaction with individual health was defined as the dependent variable (whether the person was satisfied with their individual health). Logistic regression models were computed to assess the relative contribution of each of the 24 items of the WHOQOL-BREF (independent variables) to the satisfaction with health (dependent variable). These results were adjusted for age. The results were computed separately for subjects with and without chronic LBP. In addition, a multivariate logistic regression analysis was performed, in which all items and ages were included simultaneously. To check for multicollinearity of the items a correlation test was performed. All items correlated significantly with each other. However, the highest correlation coefficient according to Pearson was 0.606. Thus, it was judged that the variables of the WHOQOL-BREF did not correlate with each other very much, and all variables were included in the multivariate regression model. The results of all logistic regression models are presented as odds ratios (ORs) with 95% CIs. Bonferroni corrections for multiple testing were applied by multiplying the *p*-value of each tested hypothesis by the number of hypotheses tested. These corrections were applied to both the univariate and the multivariate logistic regression analyses. All results were stratified by sex.

RESULTS

In the general population aged 15–64 years, the prevalence of chronic LBP was 8.0% (95% CI 7.6–8.3) in men (493 subjects of the sample) and 8.8% (95% CI 8.5–9.2) in women (545 subjects) ($p=0.086$). Men and women with chronic LBP were more often “very dissatisfied” or “dissatisfied” with their health compared with the general population in the same age group. In the general population, 5.7% of men were very dissatisfied or dissatisfied with their health compared with 22.5% of men with chronic LBP ($p<0.001$). The corresponding data for women were 5.4% in the general population compared with 28.3% with chronic LBP ($p<0.001$). The proportion of subjects who rated their QoL as “very bad” or “bad” was also higher in subjects with chronic LBP compared with the general population. The percentages were 3.3% vs 8.6% in men ($p<0.001$) and 3.8% vs 14.7% in women ($p<0.001$). The proportion of

Table I. Quality of life (QoL) in men and women with and without chronic low back pain (LBP). Age-adjusted means (95% confidence intervals (CI))

	Men		Women	
	With chronic LBP (<i>n</i> =500) Mean (95% CI)	Without chronic LBP (<i>n</i> =5,692) Mean (95% CI)	With chronic LBP (<i>n</i> =547) Mean (95% CI)	Without chronic LBP (<i>n</i> =5,742) Mean (95% CI)
QoL—physical health	60.5 (59.7–61.2)	64.1 (63.0–64.3)*	59.2 (58.4–59.9)	63.5 (63.3–63.8)*
QoL—psychological health	66.6 (65.7–67.5)	70.2 (69.9–70.4)*	65.3 (64.4–66.1)	70.2 (70.0–70.5)*
QoL—social relationships	72.8 (71.4–74.3)	79.8 (79.4–80.2)*	74.1 (72.8–75.5)	80.4 (80.0–80.8)*
QoL—environment	71.5 (70.4–72.6)	77.5 (77.2–77.8)*	69.7 (68.6–70.8)	77.0 (76.7–77.4)*

* $p<0.001$ after Bonferroni correction for multiple testing.

Table II. Proportions of men and women with and without chronic low back pain (LBP) with deterioration in each item of the World Health Organization Quality of Life Questionnaire (WHOQOL) and the effect of those items on the satisfaction with individual health. (Results of logistic regression analyses with 1 independent variable of interest, adjusted for age)

	Men				Women			
	With chronic LBP (n=493)		Without chronic LBP (n=5701)		With chronic LBP (n=545)		Without chronic LBP (n=5638)	
	Deterio- ration %	Effect on satisfaction with individual health OR 95% CI	Deterio- ration %	Effect on satisfaction with individual health OR 95% CI	Deterio- ration %	Effect on satisfaction with individual health OR 95% CI	Deterio- ration %	Effect on satisfaction with individual health OR 95% CI
To what extent do you feel that physical pain prevents you from doing what you need to do?	52.3	8.6 4.7–15.6**	12.4**	10.6 8.3–13.5**	54.7	6.6 4.1–10.1**	12.3**	12.3 9.6–15.8**
How much do you need any medical treatment to function in your daily life?	37.7	14.7 8.4–25.9**	11.5**	13.9 10.8–18.0**	43.3	13.8 8.0–22.8**	10.9**	14.7 11.3–19.0**
How much do you enjoy life?	45.7	11.2 6.3–19.9**	21.0**	8.9 6.9–11.4**	50.0	8.4 3.1–17.4**	19.0**	13.6 10.4–17.8**
To what extent do you feel your life to be meaningful?	22.2	7.7 4.7–12.4**	10.2**	8.8 6.9–11.7**	22.2	4.8 4.7–12.4**	9.9**	8.0 6.2–10.2**
How well are you able to concentrate?	26.0	4.2 2.7–6.7**	15.5**	3.8 3.0–4.8**	35.6	3.5 2.4–5.1**	18.1**	4.8 3.8–6.1**
How safe do you feel in your daily life?	25.2	3.7 2.3–5.8**	11.2**	4.5 3.5–5.8**	30.8	6.2 4.1–9.3**	13.1**	6.0 4.7–7.7**
How healthy is your physical environment?	25.2	2.0 1.3–3.2	22.6	1.9 1.5–2.4**	33.8	1.4 1.0–2.1	24.6*	1.6 1.3–2.1*
Do you have enough energy for everyday life?	35.2	15.2 8.8–26.5**	13.4**	11.1 8.7–14.1**	45.7	7.9 5.1–12.4**	16.2**	14.0 10.8–18.2**
Are you able to accept your bodily appearance?	22.5	3.1 1.9–4.9**	13.3**	4.2 3.3–5.3**	32.5	2.3 1.6–3.4*	19.1**	4.8 3.8–6.1**
Have you enough money to meet your needs?	63.5	2.4 1.5–4.0*	43.1**	2.4 1.9–3.0**	60.0	3.0 2.0–4.7**	43.2**	2.7 2.1–3.5**
How available to you is the information that you need in your day-to-day life?	24.5	1.7 1.1–2.8	13.3**	2.8 2.2–3.6**	25.3	3.7 2.4–5.6**	13.6**	4.2 3.0–5.4**
To what extent do you have the opportunity for leisure activities?	44.5	1.9 1.2–2.9	32.5**	2.3 1.9–2.9**	51.4	2.9 2.0–4.3**	32.4**	3.5 2.7–4.4**
How satisfied are you with your transport?	32.5	9.3 5.7–15.2**	6.7**	11.9 9.1–15.5**	31.7	9.7 6.3–15.0**	6.5**	14.2 10.8–18.5**
How satisfied are you with your sleep?	37.1	8.3 5.1–13.6**	14.3**	6.8 5.4–8.7**	44.8	5.2 3.4–7.8**	16.1**	7.2 5.6–9.1**
How satisfied are you with your ability to perform your daily living activities?	25.2	10.9 6.7–17.8**	7.6**	11.2 8.7–14.4**	29.7	9.4 6.1–14.1**	7.6**	20.4 15.7–26.4**
How satisfied are you with your capacity for work?	33.3	18.6 10.6–32.7**	9.4**	12.5 9.7–16.0**	36.1	10.0 6.4–15.6**	8.9**	21.1 16.3–27.2**
How satisfied are you with yourself?	21.5	9.5 5.8–15.7**	10.1**	8.2 6.5–10.5**	25.7	6.3 4.1–9.6**	10.3**	12.1 9.5–15.5**
How satisfied are you with your personal relationships?	21.1	3.5 2.1–5.6**	10.8**	3.2 2.5–4.2**	21.8	3.7 2.4–5.7**	10.6**	4.4 3.4–5.6**
How satisfied are you with your sex life?	28.2	5.1 3.2–8.0**	20.2*	3.6 2.8–4.5**	36.7	4.3 2.9–6.4**	20.1*	3.4 2.7–4.3***
How satisfied are you with the support you get from your friends?	24.1	2.6 1.6–4.1*	13.4**	3.0 2.4–3.9**	22.0	4.3 2.8–6.6**	11.9**	3.6 2.8–4.6**
How satisfied are you with your living conditions?	15.9	2.3 1.3–3.9	13.6	2.1 1.6–2.8**	17.1	3.9 2.5–6.3**	13.6	2.5 1.9–3.3**
How satisfied are you with your access to health services?	19.7	2.3 1.4–3.7	10.8**	2.6 2.0–3.4**	19.4	3.7 2.4–5.7**	11.1**	3.0 2.3–3.9**
How well are you able to get around?	24.3	1.8 1.1–2.8	17.2*	2.1 1.6–2.7**	22.0	3.0 2.0–4.6**	17.3	2.9 2.3–3.8**
How often do you have negative feelings such as blue mood, despair, anxiety, depression?	31.2	5.1 3.2–8.0**	15.3**	7.6 6.0–9.7**	51.4	3.6 2.4–5.4**	24.5**	7.6 6.0–9.7**

* $p < 0.01$, ** $p < 0.001$ after Bonferroni correction for multiple testing. CI: confidence interval; OR: odds ratio.

subjects with chronic LBP who were “very dissatisfied” or “dissatisfied” with their health or rated their QoL as “very bad” or “bad” was significantly greater in women compared with men ($p=0.034$ and $p<0.001$). QoL in all dimensions was rated worse in men and women with chronic LBP compared with men and women without chronic LBP (Table I). These differences were especially high in the domains social relationships and environment.

Impairment in almost all items of QoL of the WHOQOL was significantly more prevalent in subjects with chronic LBP compared with those without (Table II). As also indicated in Table II, all items of the WHOQOL significantly predicted health satisfaction, both in men and women with chronic LBP and in men and women without chronic LBP. Being affected by a given reduction in a dimension of QoL was associated with approximately the same chance of being dissatisfied with health status in subjects with or without chronic LBP.

When all items of the WHOQOL and age were simultaneously entered into a logistic regression model, there were only a few items left that could explain health satisfaction in subjects with chronic LBP when adjusted for all other variables. In this model, in men, the determinants that positively influenced health satisfaction were: satisfaction with one’s sex life, needing medical treatment to function in daily life, satisfaction with capacity for work, and having enough energy for everyday life. In women, the determinants that positively influenced health satisfaction were: needing medical treatment to function in daily life, satisfaction with living conditions, having enough energy for everyday life, the ability to enjoy life, and the feeling of safety in daily life. After Bonferroni correction the significant variables that influenced health satisfaction were “needing medical treatment to function in daily life” in both sexes. In men, the additional significant variables were “satisfaction with sex life”, and “satisfaction with work capacity”. In women, the additional significant variable was “satisfaction with living conditions” (Table III).

A sensitivity analysis was performed in which the variables of the WHOQOL were dichotomized with another cut-off level: when a health determinant applied to a subject either “extremely” or “rather” it was coded 1, and when a health determinant was indicated by the subjects to apply “fairly”, “little” or “not at all”, it was coded 0. This analysis yielded smaller numbers of subjects affected by a certain health determinant; however, the influence of a health determinant on health satisfaction showed similar results to those in the presented analysis.

DISCUSSION

The results of this study reveal clear determinants of health satisfaction in men and women with chronic LBP. The results confirm that, for patients with chronic LBP, functionality in daily life and self-management are of great importance. This is in agreement with a number of previous studies (21, 22). The findings of the present study add more detail to the existing description of what this functionality means for men and women, namely not being influenced in their work capacity, not having limitations

Table III. Independent predictors of health satisfaction in men and women with chronic low back pain (LBP); results of multivariate logistic regression analyses; results presented as odds ratio with 95% confidence interval (CI); only those results for which the CI does not include “1” are presented

	Men <i>n</i> =493 OR 95% CI	Women <i>n</i> =545 OR 95% CI
How much do you need any medical treatment to function in your daily life?	6.3 2.6–15.3**	4.2 2.1–8.5**
How much do you enjoy life?		2.6 1.2–5.3
How safe do you feel in your daily life?		2.2 1.2–4.2
Do you have enough energy for everyday life?	3.7 1.5–9.3	2.9 1.5–5.9
How satisfied are you with your capacity for work?	4.2 1.7–10.4*	
How satisfied are you with your sex life?	6.6 2.9–14.8***	
How satisfied are you with your living conditions?		3.7 1.8–7.9*
Age		1.1 1.0–1.3

* $p<0.05$; ** $p<0.01$; *** $p<0.001$ after Bonferroni correction for multiple testing.

in their sexual life, not being dependent on medical treatment, having enough energy and enjoying life. In particular, the fact that sexual function is one of the most important determinants of health satisfaction in men with chronic LBP has not been so clearly highlighted in previous studies, and has not yet found an implication in routine medical consultations.

The strongest predictor for health satisfaction in men with chronic LBP was satisfaction with sexuality. In another study, men and women with sexual dissatisfaction had a 2.6 and 3 times higher chance of being affected by muscle or joint pain, respectively (23). The factor “satisfaction with one’s sex life” is difficult to support, but it seems to be important to acknowledge this problem and to take this factor into consideration within the framework of evaluating the medical history of a patient.

We found that “satisfaction with capacity to work” is an important factor for men. The possibility to continue working during rehabilitation confirms the importance of an outpatient rehabilitation facility as well as programmes that help patients to increase their work capacity.

In this survey, men and women wanted to be independent of the need for medical treatment to function in daily life. Therefore, empowerment of the patients concerning education, self-care, physical activity and possible treatment options for home therapy is important (24). This finding is consistent with those of Nordin et al. (25), who suggested that healthcare providers should shift their emphasis to educating patients to manage their own back pain and therefore encourage self-care (14, 25). Another example of home-based treatment is warm packs. Although there is insufficient evidence for the effect of superficial heat for acute and subacute LBP, there is moderate

evidence that heat wrap therapy provides a small short-term reduction in pain and disability (26).

The ability to enjoy life was another determinant for female subjects. This factor and other important aspects, such as energy and safety, are difficult to influence. The exact content of what the patients understand when choosing this factor is not always clear. As a suggestion, the factor "safety" may be influenced by ongoing monitoring or supervision of an exercise programme, and by giving instructions on safety issues while performing the correct training. Furthermore, it may be helpful to inform the patient that it is safe to move, to encourage them to be active and to diminish the fear of painful movement. The influencing factor of living conditions for women in our study might be counteracted by recommendations about suitable beds, mattresses or pillows, in addition to general ergonomic instructions regarding activities at home, such how to make the bed or how to clean.

It is presumed that female sex is a possible risk factor for poor health-related QoL in patients with LBP. This fact was found by Salaffi et al. (27) and is emphasized by our data. These results contradict those of Ono et al. (28), who found that men tend to experience a greater decrease in health-related QoL than women with the same number of LBP days. As possible explanation for these differences Ono mentioned the fact, that previous studies (and now ours) examined the presence or absence of LBP, whereas his research counted the numbers of days with LBP. In our survey we found a stronger correlation of satisfaction with work capacity, and satisfaction in sex life, with health satisfaction in men compared with women, and a stronger correlation of satisfaction with living conditions, and ability to enjoy life, with health satisfaction in women. Similarly, in a Swedish survey, gender differences were found in the factors work, economy, daily living, social life and expectations, which influenced pain prevalence and experienced severity of pain (29).

The 63.1% response rate was disappointing, and could have influenced the percentage of LBP in both directions. However, the response rate should not have influenced the main focus of our study, the predictors of health satisfaction.

A strength of our study is the large number of analysed subjects in an unselected, representative sample of community-dwelling people. The analysis is based on a survey with a questionnaire including more than 450 items regarding health status, health behaviour, quality of life, and healthcare utilization, not focusing explicitly on pain and QoL. Thus, it can be assumed that the patients with chronic LBP do not automatically attribute deterioration in one aspect of QoL to their pain, and a potential over-reporting bias may have been avoided. Another strength of the study is the use of a standardized and validated method to measure QoL in many dimensions; the WHOQOL-BREF. Many of the items of the Comprehensive ICF Core Set for LBP are covered by the German version of the WHOQOL-BREF, which was used in our study. The instrument is, however, not primarily designed to assess determinants of health satisfaction, which could be a limitation of our study. Another possible limitation is the ambiguous content of some questions; however, this might also be seen as an opportunity to make different interpretations.

In conclusion, this study clearly shows that there are many aspects of QoL that predict health satisfaction in subjects with chronic LBP. As the strongest determinants for dimensions of health satisfaction regarding QoL, our study identified items that represent aspects of independence and managing daily living activities. With the existing options of therapy and intervention we have a good opportunity to influence patient's satisfaction with capacity for work and independence of the need of medical treatment, as the most important examples of the dimensions of QoL mentioned above. Hence, the present study underscores the importance of taking into account all aspects of a patient's life when considering adequate therapy, and moving away from the medical approach of eliminating the pain to a more bio-psycho-social approach of empowering the patient to continue as actively as possible with their usual life.

REFERENCES

1. Willweber-Strumpf A, Zenz M, Bartz D. Epidemiologie chronischer Schmerzen – eine Befragung in fünf Facharztpraxen in Bochum. *Schmerz* 2000; 14: 84–91.
2. Hasselstrom J, Liu-Palmgren J, Rasjo-Wraak G. Prevalence of pain in general practice. *Eur J Pain* 2002; 6: 375–385.
3. Dorner T, Gustorff B, Likar R, Lawrence K, Schwarz F, Rieder A. Neuropathischer Schmerz im stationären Bereich. Analyse der Österreichischen Krankenhausentlassungsdaten. *Schmerz* 2009; 23: 59–64.
4. Friessens CH, Willweber-Strumpf A, Zenz MW. Chronic pain in primary care. German figures from 1991 and 2006. *BMC Public Health* 2009; 9: 299.
5. Gerdle B, Bjork J, Henriksson C, Bengtsson A. Prevalence of current and chronic pain and their influences upon work and healthcare-seeking: a population study. *J Rheumatol* 2004; 31: 1399–1406.
6. Breivik H, Collett B, Ventafridda V, Cohen R, Gallacher D. Survey of chronic pain in Europe: prevalence, impact on daily life, and treatment. *Eur J Pain* 2006; 10: 287–333.
7. Ehrlich GE. Low back pain. *Bull WHO* 2003; 81: 671–676.
8. WHO. International Classification of Functioning, Disability and Health (ICF). Geneva: World Health Organization; 2001.
9. Andersson G. Epidemiological features of chronic low-back pain. *The Lancet* 1999; 354: 581–585.
10. Dorner TE, Muckenhuber J, Stronegger WJ, Rasky E, Gustorff B, Freidl W. The impact of socio-economic status on pain and the perception of disability due to pain. *Eur J Pain* 2011; 15: 103–109.
11. Cieza A, Stucki G, Weigl M, Disler P, Jackel W, van der Linden S, et al. ICF Core Sets for low back pain. *J Rehabil Med* 2004; Suppl. 44: 69–74.
12. Hoogendoorn WE, van Poppel MNM, Bongers PM, Koes BW, Bouter LM. Systematic review of psychosocial factors at work and private life as risk factors for back pain. *Spine* 2000; 25: 2114–2125.
13. Murphy B, Herrman H, Hawthorne G, Pinzone T, Evert H. Australian WHOQoL instruments: User's manual and interpretation guide. Melbourne: Australian WHOQoL Field Study Centre; 2000.
14. Stein KV, Dorner TE, Ilias W, Rieder A. Schmerzpatienten und ihre Erwartungen an die Versorgung. Ergebnisse aus dem Österreichischen Patientenbericht. *Schmerz* 2010; 24: 468–473.
15. van Duijn M, Lotters F, Burdorf A. Interrelationships between pain, disability, general health, and quality of life and associations with work-related and individual factors: a study among workers on sickness absence for 2 to 6 weeks for musculoskeletal complaints. *Spine (Phila Pa 1976)* 2004; 29: 2178–2183.
16. Statistik Austria. Gesundheitsbefragung 2006/07, Hauptergebnisse

- und methodische Dokumentation. In: Statistik Austria, editor. Vienna: Bundesministerium für Gesundheit, Familie und Jugend; 2007.
17. Aromaa A, Koponen P, Tafforeau J, Vermeire C. Evaluation of health interview surveys and health examination surveys in the European Union. *Eur J Publ Health* 2003; 13: 67–72.
 18. European Commission. The components of the European Health Survey System. European Commission, Brussels, 2008.
 19. Group TW. Development of the World Health Organization WHOQOL-BREF quality of life assessment. *Psychol Med* 1998; 28: 551–558.
 20. Angermeyer MC, Kilian R, Matschinger H. WHOQOL-100 und WHOQOL-BREF. Handbuch für die deutsche Version der WHO Instrumente zur Erfassung von Lebensqualität. Göttingen: Hogrefe; 2000.
 21. Casarett D, Karlawish J, Sankar P, Hirschman K, Asch DA. Designing pain research from the patient's perspective: what trial end points are important to patients with chronic pain? *Pain Med* 2001; 2: 309–316.
 22. Brown CA. The beliefs of people with chronic pain in relation to 'important' treatment components. *Eur J Pain* 2004; 8: 325–333.
 23. Dorner TE, Stronegger WJ, Rebhandl E, Rieder A, Freidl W. The relationship between various psychosocial factors and physical symptoms reported during primary-care health examinations. *Wien Klin Wochenschr* 2010; 122: 103–109.
 24. Airaksinen O, Brox JI, Cedraschi C, Hildebrandt J, Klüber-Moffett J, Kovacs F, et al. Chapter 4. European guidelines for the management of chronic nonspecific low back pain. *Eur Spine J* 2006; 15: 192–300.
 25. Nordin M, Welsler S, Campello MA, Pietrek M. Self-care techniques for acute episodes of low back pain. *Best Pract Res Clin Rheumatol* 2002; 16: 89–104.
 26. French SD, Cameron M, Walker BF, Reggars JW, Esterman AJ. Superficial heat or cold for low back pain. *Cochrane Database Syst Rev* 2006: CD004750.
 27. Salaffi F, De Angelis R, Stancati A, Grassi W, Pain MA, Prevalence IGs. Health-related quality of life in multiple musculoskeletal conditions: a cross-sectional population based epidemiological study. II. The MAPPING study. *Clin Exp Rheumatol* 2005; 23: 829–839.
 28. Ono R, Higashi T, Takahashi O, Tokuda Y, Shimbo T, Endo H, et al. Sex differences in the change in health-related quality of life associated with low back pain. *Qual Life Res* 2011 Dec 20 [Epub ahead of print].
 29. Bingefors K, Isacson D. Epidemiology, co-morbidity, and impact on health-related quality of life of self-reported headache and musculoskeletal pain – a gender perspective. *Eur J Pain* 2004; 8: 435–450.