

ORIGINAL REPORT

HEALTH-RELATED QUALITY OF LIFE IN FIBROMYALGIA AND REFRACTORY ANGINA PECTORIS: A COMPARISON BETWEEN TWO CHRONIC NON-MALIGNANT PAIN DISORDERS

Paulin Andréll, MD, PhD¹, Tomas Schultz, MD², Kaisa Mannerkorpi, PT, PhD³, Lena Nordeman, RPT, PhD⁴, Mats Börjesson, MD, PhD¹ and Clas Mannheimer, MD, PhD¹

From the ¹Department of Molecular and Clinical Medicine/Multidisciplinary Pain Center and ²Department of Molecular and Clinical Medicine/Cardiology, Institute of Medicine and Sahlgrenska University Hospital, ³Institute of Medicine/Rheumatology and Sahlgrenska University Hospital/Physiotherapy, Gothenburg University, and ⁴Physiotherapy Unit in Alingsås, Primary Health Care/Research and Development Unit in Primary Health Care, Södra Älvsborg, Sweden/Sahlgrenska School of Public Health and Community Medicine, Institute of Medicine, Gothenburg University, Göteborg, Sweden

Objective: To compare health-related quality of life in 2 different populations with chronic pain: patients with fibromyalgia and patients with refractory angina pectoris. Previous separate studies have indicated that these patient groups report different impacts of pain on health-related quality of life.

Methods: The Short-Form 36 was used to assess health-related quality of life. In order to adjust for age and gender differences between the groups, both patient groups were compared with age- and gender-matched normative controls. The difference in health-related quality of life between the 2 patient groups was assessed by transforming the Short-Form 36 subscale scores to a z-score.

Results: The patients with fibromyalgia ($n=203$) reported poorer health-related quality of life in all the subscale scores of Short-Form 36 ($p < 0.05$ – 0.0001) than the patients with refractory angina ($n=146$) when both groups were compared with their corresponding normal population (z-score).

Conclusion: Patients with fibromyalgia experience greater impairment in health-related quality of life compared with the normal population than do patients with refractory angina pectoris, despite the fact that the latter have a potentially life-threatening disease. The great impairment in health-related quality of life in patients with fibromyalgia should be taken into consideration when planning rehabilitation.

Key words: angina pectoris; fibromyalgia; chronic pain; quality of life.

J Rehabil Med 2014; 46: 341–247

Correspondence address: Paulin Andréll, Multidisciplinary Pain Center, Sahlgrenska University Hospital/Östra, SE-416 85 Göteborg, Sweden. E-mail: paulin.andrell@gu.se

Accepted Nov 1, 2013; Epub ahead of print Feb 14, 2014

INTRODUCTION

Chronic non-malignant pain disorders are often associated with impairment of physical and social functions, as well as sleep disturbance, anxiety and depressive disorders, which may have a profoundly negative impact on patients. The associated

symptoms have a further negative impact on the patient's total life situation and might affect the patient as much as the pain per se. Hence, when evaluating treatment modalities and planning rehabilitation programmes for patients with chronic pain, it is important to assess their impact on the patient's function in daily life and not only to assess pain reduction. Thus, health-related quality of life (HRQoL) questionnaires are often used as a complement to morbidity data (1).

Generic HRQoL questionnaires are designed to assess HRQoL in different patient groups as well as in healthy populations. Patients with chronic pain disorders of various genesis report severe negative impacts on HRQoL according to the Short-Form 36 (SF-36) (2–4). Previous studies have indicated a negative correlation between pain intensity/pain-related disability; the higher the pain intensity/the higher pain-related disability, the lower HRQoL (5).

Fibromyalgia is a chronic pain disorder, characterized by diffuse widespread muscle pain with a duration of more than 3 months, fatigue, sleep disturbance, stiffness and skin sensitivity (6). The diagnosis includes the presence of mild or greater tenderness in ≥ 11 of 18 tender points (6). The prevalence of fibromyalgia has been approximated to 2% and is more common among women (7, 8). Studies have indicated that patients with fibromyalgia report generally impaired HRQoL with regard to both physical and psychological dimensions (9–11). Compared with other pain populations, such as rheumatoid arthritis, osteoporosis and patients with whiplash disorder, patients with fibromyalgia have similar or more impaired HRQoL (3).

Refractory angina pectoris is another chronic pain disorder, defined as severe stable angina functional class 3–4 according to the Canadian Cardiovascular Society classification (CCS), which signifies chest discomfort/pain at slight effort or even at rest, due to coronary artery disease (12, 13). In addition, patients with refractory angina are not available for further conventional pharmacological treatment or for further revascularization procedures (13). Patients with refractory angina are considered to have terminal, or end-stage coronary artery disease. The patients are often informed by their physicians that “nothing more can

be done" even though the anginal symptoms severely limit the patients' daily activities and many patients feel greatly incapacitated by the symptoms (14). The incidence of refractory angina pectoris is reported to be 3 patients per 100,000 inhabitants per year and the majority of the patients are men (15, 16).

Although both patients with refractory angina and those with fibromyalgia experience severe chronic pain it is not known if the pain has a different impact on daily life in these 2 entities. To our knowledge this has not been investigated in previous studies. However, previous separate studies indicate that patients with refractory angina experience less impact on the psychological dimensions of HRQoL than do patients with fibromyalgia (9, 10, 15). This is also in agreement with our clinical experience; patients with fibromyalgia report greater impact of the pain on their physical activity and well-being. However, no comparison between these 2 groups regarding HRQoL has been performed previously. Hence, the aim of our study was to assess and compare HRQoL in patients with fibromyalgia and refractory angina pectoris.

METHODS

Patients and settings

Patients with fibromyalgia were identified at primary healthcare settings and rheumatology clinics in Western Sweden during 1997–2005 for 2 separate treatment studies. All patients fulfilling the American College of Rheumatology diagnosis criteria for fibromyalgia were included in the studies (6). In total, 317 patients were screened for fibromyalgia and, of these, 203 female patients were diagnosed with fibromyalgia after clinical examination (17, 18). Most patients were treated with conventional pharmacological pain treatment. The mean age of subjects in the fibromyalgia group was 46 years (range 22–71 years). All the patients were women. Patients with severe somatic or psychiatric disorders were excluded from the studies. None of the patients with fibromyalgia had severe cardiovascular disease or refractory angina pectoris. A detailed description of co-morbidity and medication of the fibromyalgia group has been given elsewhere (17, 18). Occupational status and pharmacological pain treatment at inclusion is shown in Table I. The HRQoL questionnaires were administered to the patients in the clinical setting.

During the same period (2000–2003), patients with refractory angina pectoris were identified for an epidemiological study at 7 centres performing coronary angiographies in Western Sweden. All patients who fulfilled the diagnosis criteria of refractory angina pectoris were included in the study (15), i.e. history of stable angina of CCS class 3–4, despite optimum conventional pharmacological therapy (beta-blockers, calcium antagonists, nitrates), who have the presence of coronary artery disease on a recently performed coronary angiogram and are not available for further revascularization procedures (coronary artery bypass grafting and/or percutaneous coronary intervention). In total, 146 patients with refractory angina pectoris were included, the mean age of patients in the refractory angina pectoris group was 71 years (range 46–90 years) and 26.7% were women. Two (1.4%) of the patients (both female) in the refractory angina pectoris group had fibromyalgia, 13 patients (8.9%) had other rheumatic diseases, and 6 patients (4.1%) had long-term non-malignant pain. Occupational status and pharmacological pain treatment at inclusion is presented in Table I. A detailed description of the co-morbidity and medication of the refractory angina group has been presented elsewhere (15). The HRQoL questionnaires were sent by post to the patients.

Normative controls from the Swedish population

In order to compare the HRQoL of the patients with fibromyalgia and those with refractory angina, despite the gender and age differences of the populations, the 2 groups were matched with regard to age and gender to normative controls from the Swedish population. The normative controls

Table I. Age, gender and occupational status in the fibromyalgia and refractory angina pectoris groups

	Fibromyalgia (n=203)	Refractory angina pectoris (n=146)
Age, years, mean (range)	46 (22–71)	71 (46–90)
Gender, male/female, n (%)	0/203 (0/100)	107/39 (63/27)
Employment, n (%)		
Full-time employment or unemployed	31 (15)	5 (3)
Full-time sick leave or disability pension	93 (46)	18 (12)
Part-time sick leave or disability pension	78 (38)	4 (3)
Retired	1 (<1)	119 (82)
Pharmacological treatment ^a , n (%)		
Analgesics/NSAID	135 (67)	25 (17)
Psychotropic drugs ^b	84 (41)	27 (19)

^aPatients could use more than 1 medicine. For 2 patients in the fibromyalgia group information regarding pharmacological treatment was not obtained due to early study drop-out. A majority of the refractory angina patients (n=109, 75%) used short-acting nitrates for anginal pain relief.

^bAntidepressants and/or anxiolytics and/or sedatives.

NSAID: non-steroidal anti-inflammatory drugs.

were selected from population studies made in rural, urban–suburban populations between 1991 and 1992 for the use of the SF-36 in Swedish circumstances (19–21). The age of the normative controls ranged from 15 to 93 years (mean age 43 years) and 48% of responders were men. The HRQoL questionnaires were posted to randomly selected households in the study populations. Radio and television advertisements were used to inform about the population studies and reminders were sent after 2 weeks. The response rate was 68%, comprising 8,930 subjects (19–21).

Short-Form 36

The SF-36 is a validated, well-known and widely used HRQoL questionnaire (19, 21, 22). The 36 items in the questionnaire are grouped into 8 subscale scores: physical functioning, role limitations caused by physical problems, bodily pain, general health, energy/vitality, social functioning, role limitations caused by emotional problems and mental health. The subscale scores range from 0 to 100, with a higher score indicating a better HRQoL.

The SF-36 has been used in various fields of clinical practice to screen individual patients, in research to differentiate health benefits produced by different treatments and in health policy evaluations to compare the burden of different diseases. The SF-36 has been translated and adapted to Swedish circumstances and the questionnaire is designed for self-administration (19, 21).

Statistical analysis

Both the fibromyalgia group and the refractory angina pectoris group were compared with age- and gender-matched normative controls from the Swedish population (normal population n=8,930, of whom n=1,055 were matched to the fibromyalgia group and n=98 to the refractory angina pectoris group) in order to adjust for the impact of age and gender on HRQoL (19–21, 23). The matching was done according to the least-ratio method, i.e. the least number of controls for a patient of certain age and gender decided the selected number of controls for each patient in the group. The controls were chosen randomly from the normal population. For the refractory angina group, including many older patients, not all patients had a matched normative control. For these cases the age interval for the control patients was extended to a 5-years interval. The patients and controls were not treated as pairs in the analyses. Comparisons between patient groups and normative controls were done on original SF-36 subscales' values.

SF-36 subscale scores were also transformed to a z-score for each patient within the fibromyalgia and the refractory angina pectoris groups. The z-

Table II. In order to adjust for age and gender differences in health-related quality of life (HRQoL) between the fibromyalgia group and the refractory angina group the Short-Form 36 (SF-36) subscale scores were transformed to a z-score. A negative z-score indicates that the patient population has a poorer HRQoL than the corresponding normal population. The greater the z-score, the greater the difference in HRQoL compared with the normal population. The fibromyalgia group reported significantly greater impairment of HRQoL in all subscale scores of SF-36 than the refractory angina patients when both groups were compared with their corresponding normal population (z-score)

	Fibromyalgia (n=203) Mean (SD) [95% CI]	Refractory angina pectoris (n=110) Mean (SD) [95% CI]	p-value
Physical Functioning	-2.26 (1.27) [-2.43 to -2.08]	-1.15 (1.06) [-1.35 to -0.95]	<0.0001
Role Physical	-2.35 (1.15) [-2.51 to -2.19]	-0.96 (0.93) [-1.14 to -0.79]	<0.0001
Bodily Pain	-1.79 (0.64) [-1.88 to -1.70]	-0.86 (0.81) [-1.02 to -0.71]	<0.0001
General Health	-1.77 (0.93) [-1.90 to -1.64]	-1.21 (0.82) [-1.37 to -1.06]	<0.0001
Vitality	-1.89 (0.85) [-2.01 to -1.77]	-0.95 (0.92) [-1.12 to -0.77]	<0.0001
Social Functioning	-1.89 (1.37) [-2.08 to -1.70]	-1.08 (1.33) [-1.33 to -0.83]	<0.0001
Role Emotional	-1.34 (1.61) [-1.56 to -1.11]	-0.90 (1.31) [-1.15 to -0.65]	<0.001
Mental Health	-1.18 (1.22) [-1.35 to -1.01]	-0.89 (1.08) [-1.09 to -0.68]	0.049

95% CI: 95% confidence interval; SD: standard deviation.

score for a subscale indicates how far and in what direction that subscale deviates from the normal population's (n=8,930) mean, expressed in units of the normal population's standard deviation (SD), i.e. for each patient and subscale the z-score is equal to the subscale value minus the mean value for the normal population of the same age and gender for the same subscale divided by the SD for the normal population of the same age and gender for the same subscale. A negative z-score indicates that the patient population has a poorer HRQoL than the corresponding normal population. Each subscale's z-score for the refractory group was compared with the z-score of the fibromyalgia group. The analyses were performed using the SAS® 9.2 (Cary, NC, USA). All comparisons between groups were performed using the Mann-Whitney U test with a 5% significance level (2-tailed).

Ethical approval

The studies were carried out in accordance with the Declaration of Helsinki. The ethics committee at the University of Gothenburg approved the studies. All patients gave informed consent before inclusion.

RESULTS

The difference in HRQoL score between the fibromyalgia group and their corresponding normal population (z-score) was greater in all subscale scores of the SF-36 compared with the difference between the refractory angina patients and their corresponding normal population (Table II), i.e. the patients with fibromyalgia reported poorer HRQoL compared with their corresponding normal population than did the patients with refractory angina.

Both groups of patients reported impaired HRQoL in all the subscales scores of the SF-36 (p<0.0001) compared with their corresponding age- and gender-matched normative controls (Table III). The fibromyalgia group reported poorer HRQoL of

Table III. Health-related quality of life (HRQoL) according to the Short-Form 36 (SF-36) in the fibromyalgia group and the refractory angina pectoris group compared with their respective age- and gender-matched normative controls. Higher scores indicate better HRQoL (range 0–100). Comparisons were performed on original SF-36 values

	Fibromyalgia (n=203) Mean (SD) [95% CI]	Normative controls for the fibromyalgia group (n=1055) Mean (SD) [95% CI]	p-value	Refractory angina pectoris (n=110) Mean (SD) [95% CI]	Normative controls for the refractory angina pectoris group (n=98) Mean (SD) [95% CI]	p-value	Refractory angina pectoris vs fibromyalgia p-value
Physical Functioning	49.51 (18.81) [46.91–52.11]	87.71 (17.49) [86.64–88.78]	<0.0001	43.73 (23.87) [39.22–48.24]	74.38 (26.37) [68.76–80.00]	<0.0001	0.027
Role Physical	15.88 (27.39) [12.08–19.68]	83.27 (31.52) [81.33–85.21]	<0.0001	22.95 (37.42) [15.88–30.03]	61.34 (43.33) [52.05–70.63]	<0.0001	0.576
Bodily Pain	24.97 (15.50) [22.81–27.12]	71.82 (26.31) [70.23–73.41]	<0.0001	43.86 (22.68) [39.58–48.15]	69.55 (27.24) [64.00–75.10]	<0.0001	<0.0001
General Health	36.96 (18.52) [34.38–39.55]	75.64 (22.81) [74.24–77.04]	<0.0001	37.78 (18.64) [34.22–41.34]	68.90 (20.83) [64.40–73.39]	<0.0001	0.738
Vitality	23.44 (18.84) [20.83–26.05]	67.46 (23.33) [66.04–68.88]	<0.0001	41.00 (22.33) [36.78–45.22]	69.92 (25.72) [64.37–75.47]	<0.0001	<0.0001
Social Functioning	50.12 (26.33) [46.48–53.77]	87.85 (20.30) [86.62–89.08]	<0.0001	61.25 (27.56) [56.04–66.46]	85.79 (23.39) [81.02–90.55]	<0.0001	<0.001
Role Emotional	48.00 (44.54) [41.79–54.21]	84.98 (29.26) [83.18–86.78]	<0.0001	43.73 (45.97) [35.00–52.46]	75.79 (36.35) [67.91–83.68]	<0.0001	0.358
Mental Health	57.38 (22.95) [54.20–60.56]	79.70 (19.43) [78.51–80.89]	<0.0001	63.44 (22.18) [59.24–67.36]	82.51 (20.38) [78.06–86.96]	<0.0001	0.035

95% CI: 95% confidence interval; SD: standard deviation.

more than 2 SD compared with their corresponding normative controls with regard to the subscale scores of physical function and role physical, and more than 1 SD for the other subscale scores of SF-36. The refractory group reported poorer HRQoL of more than 1 SD compared with their corresponding normative controls with regard to the subscale scores of physical functioning, general health, vitality and social functioning (Table III).

When comparing the original SF-36 scores of the 2 populations, not adjusted for age and gender differences (z -score), the refractory patients reported better HRQoL, with regard to bodily pain ($p < 0.0001$), vitality ($p < 0.0001$), social function ($p < 0.001$) and mental health ($p = 0.035$), than the fibromyalgia group (Table III). However, the patients with fibromyalgia reported better HRQoL with regard to physical function ($p = 0.027$) than the patients with refractory angina pectoris. The response rate for the HRQoL questionnaires was 100% ($n = 203$) in the fibromyalgia group and 75% ($n = 110$) in the refractory angina group.

DISCUSSION

Patients with fibromyalgia report a more pronounced impairment of HRQoL in all subscale scores of the SF-36 assessing both physical and psychosocial aspects of HRQoL, compared with a normal population than do patients with refractory angina pectoris. However, both patient groups report impaired HRQoL according to the SF-36 compared with their respective normative controls. Patients with fibromyalgia also seem to experience more pronounced disability and more impaired HRQoL compared with other pain populations (3, 11, 24). This is in agreement with the results of other studies regarding the experienced disability in patients with fibromyalgia. In a study by Kaplan et al. (25), patients with fibromyalgia reported lower quality of well-being than patients with other chronic diseases such as chronic obstructive pulmonary disease, rheumatoid arthritis and advanced cancer. In contrast, patients with refractory angina pectoris seem to have rather well-preserved HRQoL compared both with patients with fibromyalgia and with other populations with coronary artery disease (15). The fibromyalgia group report HRQoL scores comparable to that of other populations with fibromyalgia (3, 9–11).

Regarding the results of the present study, there are several possible explanations for the difference in perceived HRQoL between the fibromyalgia and refractory angina pectoris patients. Age and gender have a non-negligible impact on HRQoL. Women generally report poorer HRQoL than do men, particularly in the ages between 30 and 40 years, and over 70 years (19, 26). Physical dimensions of HRQoL are negatively associated with greater age (19). In contrast, epidemiological studies report that pain decreases after 65 years (27). However, since refractory angina pectoris is a condition affecting older persons (mean age in the range 64–71 years) due to coronary artery disease, positive impact on HRQoL due to decreased pain in this population is unlikely (15, 16). Correction for age and gender differences between the patient populations was

made by assessing the difference in HRQoL compared with the normal population (z -score). Hence, the differences between the groups are more likely to be due to the specific pain disorder and associated factors than to differences in gender and age. According to studies of normal populations, younger persons (i.e. the fibromyalgia group) should be expected to have better HRQoL than the refractory angina group, even taking into account the gender difference (19).

The greatest differences between the patients with fibromyalgia and the normal population were in the dimensions of "Physical Functioning" and "Role Physical" (Table II), i.e. how the patient experiences that he/she is limited in physical function by the disease (fibromyalgia), indicating the importance of physical function for perceived HRQoL (5). This is in line with results from a study by Coster et al. (11) indicating that impairment in the subscale score "Role Physical" is the greatest difference with regard to HRQoL between patients with fibromyalgia and those with chronic widespread pain without widespread allodynia. A possible explanation for this is that the fibromyalgia patient group's corresponding normal population is healthier in general than the normal population corresponding to the refractory angina group. Hence, when comparing persons of the same age, patients with fibromyalgia may experience that their functional status is more severely impaired than that of patients with refractory angina pectoris, as it is more acceptable in general to have some functional impairment when you are older (28). Not being able to work and participate in social activities due to pain and fatigue may also have a greater impact on perceived HRQoL in the younger fibromyalgia group. This is supported by results from previous studies, which show that socioeconomic and occupational status affects HRQoL (19, 26). Unemployed persons report lower HRQoL than employed persons, and persons on disability pensions tend to rate their HRQoL with regard to physical function and bodily pain in the lowest range of the subscales (19).

Both patient groups have chronic pain disorders, but the origin and the characteristics of the pain are different, and this might affect HRQoL. The pathophysiology of the pain in fibromyalgia is not completely understood, several possible pain mechanisms have been discussed (7, 8, 29, 30). A current hypothesis is that fibromyalgia is related to central neuromodulatory dysregulation, resulting in sensitization of the central nervous system (8). Other studies suggest that lack of concrete diagnosis of disease and under-information of the patients may contribute to impaired HRQoL (31). In addition, few patients with fibromyalgia report adequate pain relief with conventional pharmacological pain treatment modalities, and many patients decrease their physical activity in order to cope with the pain (31).

Anginal pain, on the other hand, is a visceral pain due to myocardial ischaemia associated with coronary artery disease. Anginal pain occurs in connection with slight physical or emotional stress (CCS class 3), but may also occur at rest in these patients (CCS class 4). Anginal pain is intermittent and the patients are usually able to relieve the acute pain by rest and medication (short-acting nitroglycerine). Nevertheless, the

physical effect of the angina restricts patients with refractory angina pectoris more severely than patients with fibromyalgia. Many patients simply cannot be physically active due to the pain and associated vagal reactions, since continued physical activity might lead to fainting.

In contrast, patients with fibromyalgia are always able to be physically active, even if the activity might be painful. Despite this critical difference, patients with fibromyalgia seem to experience a more profound negative effect on the physical and psychosocial aspects of HRQoL than do patients with refractory angina pectoris.

Fibromyalgia is typically associated with other symptoms, such as emotional distress, fatigue, sleep disturbance and mood disturbances, as well as anxiety and depressive disorders (8, 30, 32, 33). To date, there are few studies regarding the presence of depression and anxiety in patients with refractory angina pectoris. According to a study of patients with refractory angina pectoris by Moore et al. (34) the presence of anxiety (55% of patients) and depression (32% of patients) was non-negligible. According to the present study, the patients in the refractory angina group reported better HRQoL with regard to both psychosocial and physical subscales compared with the patients with fibromyalgia (*z*-score). Associated symptoms may therefore have a greater negative impact in patients with fibromyalgia than in patients with refractory angina pectoris. Anxiety and depressive disorders (among other factors) are suggested to contribute to poorer HRQoL in terms of mental health in patients with fibromyalgia compared with patients with rheumatoid arthritis (10, 31). However, according to a study by Giesecke et al. (35), there may be subgroups of patients with fibromyalgia who present different degrees of psychological/cognitive symptoms.

It would be reasonable to assume that patients with refractory angina pectoris would have poorer HRQoL, since they are an older population with severe pain and a potentially life-threatening medical condition. An explanation might be that the patients with refractory angina are more able to cope with their pain and that they obtain better support from the healthcare system and society than do patients with fibromyalgia. A possible reason for this may be that refractory angina pectoris is a well-defined diagnosis with objective findings and thus more readily accepted by society in general. Angina pectoris is usually considered to be a "high status" diagnosis. In contrast, fibromyalgia is less well defined and often lacks objective physical findings. Hence, fibromyalgia is often regarded as a considerably "lower status" diagnosis. This is in line with results from previous studies; patients with fibromyalgia report lower HRQoL than many of the pain conditions widely accepted as impairing. These pain conditions are usually associated with objective findings (i.e. rheumatoid arthritis, osteoporosis) and/or related to a previous trauma (i.e. whiplash disorders, neuropathic pain) (3, 24). Resilience and vulnerability factors, such as attachment and sense of coherence, may also be of importance for possible differences between the groups in terms of ability to cope with pain, but this hypothesis requires further study.

The great impairment of functional status of patients with fibromyalgia should be taken into consideration when planning for treatment and rehabilitation of patients with fibromyalgia. According to systematic reviews, multidisciplinary team care in rehabilitation for patients with fibromyalgia improves HRQoL (36). Assessment of HRQoL when participating in a rehabilitation programme might also be of value for the patient's understanding of the consequences of pain and the effects of the treatment.

Further studies regarding other factors of importance affecting the greatly impaired HRQoL in the fibromyalgia group, in addition to the pain, are needed in order to find new treatment approaches for this patient group. In addition, further studies regarding the comparatively well-preserved HRQoL in patients with refractory angina pectoris and possible salutary factors, i.e. determinants of good health and well-being, are of great interest.

The response rate in studies in which posted questionnaires are used can be expected to be 70–80% (37). However, if the questionnaire is administered in a clinical setting, the response rate is expected to be higher (38), which is in accordance with the results from the present study. Furthermore, the response rate tends to be lower with increased age (37). Hence, the response rate of the patients with refractory angina and the normal population is similar to that of other populations when posted questionnaires are used.

A limitation of the present study is the small sample size. In addition, the 2 pain populations, fibromyalgia and refractory angina patients, are not comparable with regard to age and gender distribution. Hence, comparison with a normal population was performed (*z*-score) in order to correct for age and gender differences between the groups. The HRQoL questionnaires were not distributed in the same way in the 2 populations and the response rate was lower in the refractory angina group. The lower response rate might be due to concomitant disease in this older patient group. Thus, the HRQoL in the refractory group might have been overestimated. Only patients with fibromyalgia who sought healthcare were included in the study. Hence, the HRQoL in the fibromyalgia group might have been underestimated, as one could assume that patients with fibromyalgia who do not seek healthcare might experience better HRQoL. Giesecke et al. (35) have presented a study where patients with fibromyalgia were classified in 3 subgroups with regard to pressure-pain thresholds and psychological factors. Patients with fibromyalgia were divided into 3 groups: those who exhibit extreme tenderness but lack any associated psychological/cognitive factors; an intermediate group who display moderate tenderness and have normal mood; and a group in whom mood and cognitive factors may be significantly influencing the symptom report (35). In the present study, the patient population probably consists of patients with fibromyalgia from the last group with mood and cognitive impairment, i.e. the group of patients with fibromyalgia that most frequently seeks healthcare, where psychosocial factors are the main determinants of the pain disorder. The results of the present study reflect the HRQoL in patients with

fibromyalgia at primary healthcare settings and rheumatology clinics, not the whole population of patients with fibromyalgia. The data for the normal population were collected 5–14 years before the data for the patient populations, which might have affected the results. However, when assessing HRQoL in different surveys of the Swedish normal population during this period of time, the HRQoL seems to be comparable in the Swedish population over time (19, 39). Hence, it is unlikely that the time difference for data collection for the normative controls compared with the patient populations might have affected the differences in HRQoL between the refractory angina group and the fibromyalgia group. The presence of depression and/or anxiety, the influence of socio-economic factors and occupational status were not evaluated in this study.

In conclusion, patients with fibromyalgia report more impaired HRQoL compared with a normal population than do patients with refractory angina pectoris. Factors other than the chronic pain per se may contribute to the more profoundly impaired HRQoL in the fibromyalgia group. The results of this study further highlight the substantial disability that patients with fibromyalgia experience. Even compared with a patient population with a potentially life-threatening disease, such as refractory angina pectoris, the patients with fibromyalgia report more impaired HRQoL. The great impairment in HRQoL in patients with fibromyalgia should be taken into consideration when planning rehabilitation. Further research is needed into other factors, in addition to the pain, that affect HRQoL in the fibromyalgia group in order to find new treatment approaches for this patient group. In addition, further studies into the comparatively well-preserved HRQoL in patients with refractory angina pectoris and possible salutary factors, i.e. determinants of good health and well-being, are of great interest.

ACKNOWLEDGEMENTS

The authors would like to thank the physiotherapists Birgitta Nyberg, Anna Ericsson, Mattias Hjelm, Eva Melin and Mona Lind for their contributions to the clinical examinations of the patients with fibromyalgia. We would like to thank research nurses Gunilla Norman, Lillian Alnäs and Marita Snällman for their contributions to the data collection concerning the refractory angina pectoris patients. Furthermore, we would like to thank our medical statisticians, Gunnar Ekeröth, Nils-Gunnar Pehrsson and Aldina Pivodic, for their expert professional advice. The studies were supported by the Göteborg Medical Society, the Faculty of Medicine at Göteborg University, the Regional Research Council of Göteborg and Bohuslän, the Swedish National Heart-Lung Foundation, the Health and Medical Care Executive Board of the Västra Götaland Region, the Swedish Research Council and the Swedish Rheumatoid Association.

The authors declare no conflicts of interest.

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