
Patient-related predictors of treatment satisfaction of patients with fibromyalgia syndrome: results of a cross-sectional survey

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ABSTRACT

Objectives. This study aimed to determine patient-related predictors of treatment satisfaction in fibromyalgia syndrome (FMS)-patients.

Methods. In a cross-sectional survey, participants with self-reported diagnosis of FMS were recruited by FMS-self help organisations and clinical institutions. The patients answered demographic and medical questionnaires, the Fibromyalgia Survey Questionnaire (FSQ) including the Somatic Severity Score (SSS) and Widespread Pain Index (WPI), the Patient Health Questionnaire (PHQ-4), and rated their treatment satisfaction on an 11-point Likert scale. The impact of patient-related variables (age, gender, partnership, educational level, time since onset of pain, time since FMS-diagnosis, health status since diagnosis, membership in FMS self-help organisations, polysymptomatic distress, anxiety and depression) and types of treatment on treatment satisfaction were tested by a multiple regression analysis.

Results. The study sample (n=1651 patients) was composed mainly of middle-aged women with a long disease history, and 83.9% fulfilled the American College of Rheumatology diagnostic criteria of 2010. There was considerable variety regarding treatment satisfaction in FMS-patients, 14.8% reported no, 31.7% low, 40.8% moderate and 12.7% high satisfaction. Higher satisfaction was predicted by longer time since FMS diagnosis (p=0.03), improved health status since FMS-diagnosis (p<0.0001), lower depression score (p=0.005) and higher amount of active therapies (p<0.0001). Other sociodemographic (age, gender etc.) and disease-related variables (polysymptomatic distress intensity) did not influence treatment satisfaction.

Conclusion. The results of the study illustrate the influence of patient-related

factors on treatment satisfaction. Treating comorbid depression and enabling patients to actively cope with the disease might prove successful in improving treatment satisfaction of FMS-patients.

Introduction

Patient-centred outcomes such as satisfaction with received care (treatment satisfaction) gained importance within the past decades (1, 2). Treatment satisfaction is often used as an indicator of the quality of care (1) and evaluated within quality assurance measures (3), but studies have also found that there is a direct association between satisfaction and therapeutic success. Patients whose expectations were not met by the treatment report significantly less satisfaction and also show less clinical benefit from therapy (4).

Treatment satisfaction can be influenced by many factors such as the characteristics of the patients (e.g. demographic characteristics, beliefs, previous treatment experiences, expectations), characteristics of the illness being treated (e.g. acute vs. chronic), and the treatment modalities being used (e.g. inpatient vs. outpatient therapy), and the characteristics of the interaction between patient and therapist (e.g. authoritarian vs. tolerant therapist) (2, 5). For example, for patients with acute musculoskeletal conditions the therapist was the main predictor of therapy satisfaction, whereas for patients with chronic conditions it was mainly the organisation of care (6). This study also found differences between female and male patients with females being more satisfied the better the organisation and communication was. Several other characteristics of the patients have been proposed to influence satisfaction, e.g. perceived health status (7) or psychological conditions and distress (8, 9). For gender and age (10), civil

status (11) and education, on the other hand, the results are inconclusive.

Studies have pointed out the importance of treatment satisfaction, they have found that satisfied patients are more compliant with the therapy and they also report a higher quality of life (2).

Patients with fibromyalgia syndrome (FMS), a chronic disorder characterised by chronic widespread pain, fatigue, depression, cognitive disturbances and sleep disturbances and other symptoms (12-15) as well as their physicians have been described quite dissatisfied and frustrated with the treatment outcome (16, 17). In a multinational survey, 800 FMS-patients rated their satisfaction with their current treatment fairly satisfied on average (18). On the other hand, a study with inpatients in a rheumatology clinic found higher levels of satisfaction (19) than those of Choy *et al.* (18). The degree of satisfaction was associated with the general medical regimen, special massage methods, and contact with physician and psychologist and relaxation techniques (19). Dissatisfaction was associated with longer mean time to receiving a diagnosis and the degree of disability (18). Patient-related predictors had not been studied until now in FMS, to our knowledge. Therefore, the aim of the study was to assess FMS-patients treatment satisfaction and potential patient-related predictors in a multicentred survey.

Methods

The study protocol had been approved by the ethics committee of the Ludwig Maximilian Universität München. The requirements of data protection and medical professional secrecy were respected by all study investigators. Parts of the data have previously been published (20-22).

Study centres

Study participants were recruited by the two largest German FMS-self help organisations and several clinical institutions specialised in pain medicine and psychotherapy (3), rheumatology (2), complementary and alternative medicine (2), physical therapy (1) and pain therapy (1). The clinical settings

covered outpatient (6), inpatient (2) and day care clinic (1). The levels of care included secondary (6) and tertiary care (1) and rehabilitation (1).

Organisation of the study

From November 1, 2010 to April 30, 2011 all consecutive patients of the participating study centres with an established FMS diagnosis were asked by the physicians of these centres to take part in the study. The questionnaires were handed out by the physicians with a standardised letter explaining the aim of the study. The questionnaires were returned by the patients anonymously in a closed envelope and stored by the physician away from the medical charts. At the end of the study, all questionnaires were sent to the coordinating study centre.

For the self-help organisations various approaches were used to distribute the questionnaires. Firstly, the central office of the German League for people with Arthritis and Rheumatism sent a package of questionnaire to their regional offices with the request to hand out the questionnaires during the group meetings.

Secondly, the questionnaire was sent together with the 4/2010 issue of the German Fibromyalgia Association member journal "Optimist", which every member regularly receives via mail. The questionnaires were returned by mail to the central office of their self-help organisation on the patients' own expenses. Thirdly, the questionnaires were available on the homepages of both self-help organisations. After downloading and completing the questionnaires, they could be sent by mail, fax or email to the central offices. Employees of both central offices removed the addressees' information and forwarded the questionnaires to the coordinating study centre.

Neither investigators nor patients did receive any reimbursement.

Inclusion and exclusion criteria

Members of the self-help organisations had to confirm that the diagnosis of FMS had been established by a physician. Because there is no gold standard for the clinical diagnosis of FMS, the physicians of the participating study

centres were free in the choice of FMS-diagnostic criteria. Patients with somatic diseases sufficiently explaining the pain sites of the Widespread Pain Index (WPI), *e.g.* highly active inflammatory rheumatic disease were excluded. Patients who were not able to read German and who had received a FMS diagnosis within the last month were excluded. There were no other exclusion criteria.

Questionnaires

Demographics (age, gender, family status, educational level, current professional status, membership in a FMS-self-help organisation) and medical data (time since onset of chronic widespread pain, time since FMS-diagnosis, time interval between onset of pain and diagnosis) were assessed by a questionnaire of a previous multicentre FMS-study (23). Patients were further asked how their health status has changed since the diagnosis of FMS. Satisfaction with current treatment was rated on an 11-point Likert scale ranging from 0 = "not at all satisfied" to 10 = "very satisfied".

The Fibromyalgia Survey questionnaire (FSQ) included a Symptom Severity Score (SSS) and the Widespread Pain Index (WPI).

The Symptom Severity Score (SSS) (14) includes 3 major symptoms (fatigue, trouble thinking or remembering, waking up tired or unrefreshed within the past 3 months), each of which is rated from 0 = "not present" to 3 = "very severe" and three additional symptoms (pain or cramps in lower abdomen, depression, headache within the past 6 months) with possible answers 0 = "not present" and 1 = "present", which are indicative for somatic symptom burden. The total SSS score ranges from 0-12. For the present survey, the English version of the SSS was forward- and back-translated by four German physicians, two of whom had worked for several years in the US.

The Widespread Pain Index (WPI) (14, 24) includes a list of 19 non-articular sites and patients indicate whether they suffered from pain at those sites within the past 3 months. The total WPI score ranges 0-19. For the survey a validated

German version of the WPI was used (25). The sum of the SSS and WPI ranging 0–31 is a measure of polysymptomatic distress and fibromyalgia severity, respectively (26).

To satisfy the Fibromyalgia Survey Diagnostic Criteria (FDSC) (21), a modified version of the Fibromyalgia Diagnostic Criteria by the American College of Rheumatology (ACR) (14) patients had to meet the following 3 conditions: 1) WPI $\geq 7/19$ and SSS $\geq 5/12$ or WPI between 3–6/19 and SSS $\geq 9/12$; 2) symptoms have been present at a similar level for at least 3 months; 3) no other disorder that would otherwise sufficiently explain the pain (26).

The Patient Health Questionnaire-4 (PHQ-4) (27) is an ultra-brief self-report questionnaire that consists of a 2-item depression scale (PHQ-2) and a 2-item anxiety scale (GAD-2). A score of 3-or-greater on the depression subscale represents a reasonable cut-point for identifying potential cases of major depression or other depressive disorders; a score of 3-or-greater on the anxiety subscale represents a reasonable cut-point for generalised anxiety, panic, social anxiety, and posttraumatic stress disorders. The total PHQ-4 score complements the subscale scores as an overall measure of disability (27). For the survey, the validated German version of the PHQ-4 was used (28).

Current therapies were clustered for analysis in the following way. Firstly, they were divided into active, passive and medicinal therapies. Active therapies included physical exercises such as walking, swimming, biking, hiking, muscle stretching and strengthening, mindfulness-based or relaxation methods such as yoga, qigong, tai chi, progressive muscle relaxation or meditation. Number of therapies were summed up and patients could reach scores between 0 = “no active therapies” up to 18. Passive therapies included all kinds of physiotherapy, chiropractic, ergotherapy and massages, application of heat, spa and hydrotherapy. Score for passive therapies ranges from 0 to 20. Drug therapies included all kinds of medicals (e.g. non-steroidal anti-inflammatory drugs, opioid drugs, muscle relaxants, antidepressants and psycho-

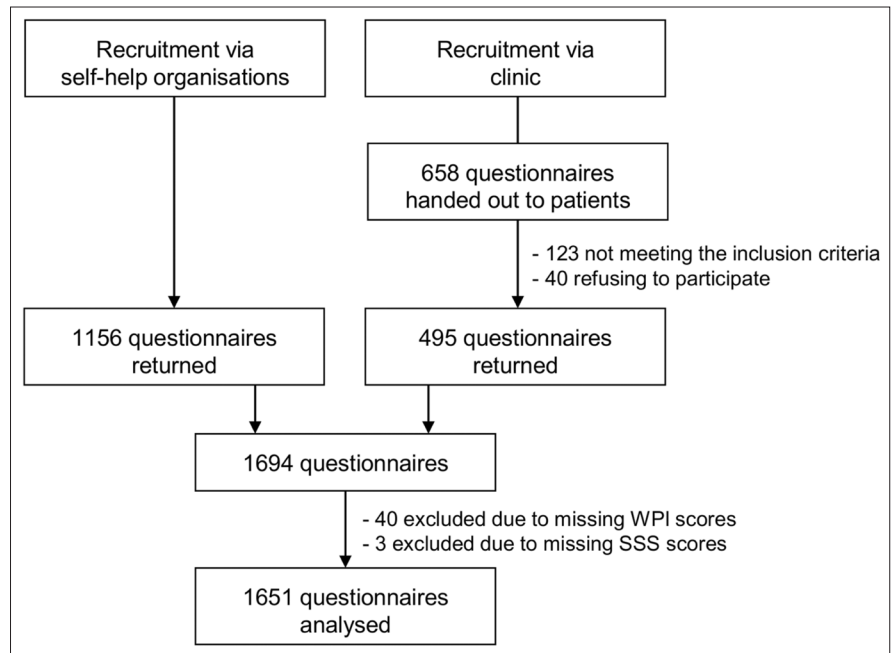


Fig. 1. Flowchart of patient recruitment.

tropic drugs). Medication was clustered into drug classes and the number of prescribed drug classes (0–8) was counted.

Statistical analysis

The data were entered by four pairs of study assistants into a preconstructed excel-data sheet. The data entry was checked by two authors at random as well as during descriptive data analysis by means of plausibility. Missing items of the SSS, WPI and PHQ-4 were coded as zero. Patients were excluded from analysis if no item of SSS and/or WPI and/or PHQ-4 was answered.

All analyses were conducted for the whole sample as well as subsamples according to the ACR criteria (21), *i.e.* patients who fulfilled the ACR criteria ACR(+) and those who did not ACR(-). A direct multiple regression analysis (without stepwise selection procedures) was performed to assess the relative predictive value of patient-related variables on patients' treatment satisfaction. The independent variables were coded as follows: age (continuous), gender (0=male, 1=female), living in a family or partnership (0=no, 1=yes), educational level (1=no school finished, 2=primary school, 3=secondary school, 4=high school, 5=university), current employment (0=not employed, 1=employed), time since FMS-diag-

nosis (continuous), time since onset of chronic widespread pain (continuous), subjective assessment of health status since FMS diagnosis (1=very much worse, 2=much worse, 3=slightly worse, 4=unchanged, 5=slightly better, 6=much better, 7=very much better), member of FMS self-help organisation (0=no, 1=yes), polysymptomatic distress score (continuous), PHQ-4 depression and anxiety sum scores (continuous), number of active, passive and drug therapies (continuous).

Results

Study participants

Figure 1 shows the flowchart of patient recruitment. There are no data available regarding how many patients contacted by the self-help organisation did not meet the inclusion criteria or refused to take part in the study. The German League for people with Arthritis and Rheumatism estimated that approximately 10,000 of their members were FMS-patients. The German Fibromyalgia Association reported to have approximately 4000 members with FMS. 123 patients of the clinical samples did not meet the primary inclusion criteria and 40 of contacted patients refused to take part in the study. One thousand, six hundred and ninety-four people returned the questionnaires. Of these,

Table I. Demographic and clinical characteristics of the total study sample and subsamples of patients according the ACR criteria (n=1651).

Variable	n total	Mean (SD), range	n (%)	No FMS according to ACR	FMS according to ACR	p-value
Sex, female	1644		1565 (95.2)	248 (95.8)	1317 (95.1)	0.75
Age	1650	54.3 (9.8), 19–86		57.8 (10.3)	53.6 (9.6)	<0.001
Living with partner/in family	1638	1263 (77.1)				
Educational level	1636					
No school finished			27 (1.6)			
Primary school			556 (34.0)			
Secondary school			671 (41.0)			
High school			130 (7.9)			
University			252 (15.4)			
Current professional status	1635					
School			10 (0.6)			
Working without sick leave			530 (32.4)			
Working, sick leave			131 (8.0)			
Applying for early retirement due to FMS			150 (9.2)			
Without job			21 (1.3)			
Housewife			179 (10.9)			
Pensioneer			614 (37.6)			
Member of a FMS self-help organisation	1641		1011 (61.6)			
Time since onset of chronic widespread pain (in years)	1625	16.6 (11.1), 0–61		17.1 (12.2)	16.5 (10.9)	0.49
Time since FMS-diagnosis (in years)	1595	6.6 (5.5), 0–41		6.9 (5.6)	6.6 (5.4)	0.36
Development of health status since FMS-diagnosis	1493					
Very much worse			763 (51.1)	85 (37.0)	678 (53.7)	<0.001
Much worse			262 (17.5)	30 (13.0)	232 (18.4)	
Slightly worse			30 (2.0)	4 (1.7)	26 (2.1)	
Unchanged			216 (14.5)	40 (17.4)	176 (13.9)	
Slightly better			60 (4.0)	13 (5.7)	47 (3.7)	
Much better			95 (6.4)	27 (11.7)	68 (5.4)	
Very much better			67 (4.5)	31 (13.5)	36 (2.9)	
Treatment satisfaction	1423					
No satisfaction (0)			211 (14.8)	25 (11.6)	186 (15.4)	<0.001
Low satisfaction (1–3)			451 (31.7)	55 (25.5)	396 (32.8)	
Moderate satisfaction (4–7)			580 (40.8)	85 (39.4)	495 (41.0)	
High satisfaction (8–10)			181 (12.7)	51 (23.6)	130 (10.8)	
Polysymptomatic distress (0–31)	1603	19.9 (5.6), 2–31		11.4 (3.9)	21.3 (4.6)	<0.001
PHQ-4 Depression (0–6)	1620	3.0 (1.7), 0–6		1.6 (1.4)	3.2 (1.7)	<0.001
PHQ-4 Anxiety (0–6)	1617	2.9 (1.8), 0–6		1.5 (1.5)	3.2 (1.8)	<0.001
PHQ-4 Disability (0–12)	1617	5.9 (3.2), 0–12		3.1 (2.6)	6.4 (3.1)	<0.001
Active therapies, n	1651	3.6 (2.5), 0–12		3.1 (2.4)	3.7 (2.5)	<0.001
Passive therapies, n	165	13.9 (2.4), 0–13		3.3 (2.3)	4.0 (2.3)	<0.001
Prescribed drug classes, n	1651	1.6 (1.1), 0–6		1.3 (1.0)	1.6 (1.1)	<0.001

1156 (68.2%) had been contacted via self-help organisations. Forty-three out of 1694 contacted persons were excluded due to total missing items in the WPI (n=40) or SSS (n=3). The questionnaires of at least 10 people who were excluded due to missing WPI-items did not include the WPI due to an organisational mistake. One thousand six hundred and fifty-one people were included in the final analysis. The ACR(+) subsample included 1386 patients (83.9%), the ACR(-) 265 (16.1%).

The study sample mainly consisted of middle-aged women with a long duration of CWP (16.6 years) and time since FMS-diagnosis (6.6 years) (Table I). The majority reported a deterioration of health status since FMS diagnosis. Treatment satisfaction is also shown in Table I. Approximately 50% of the patients were not/little or moderately/highly satisfied with the current treatment.

Comparisons between ACR(+) and ACR(-) patients revealed that patients in the ACR(+) sample were slight-

ly younger, reported more negative changes of health status since diagnoses and were less satisfied than those in the ACR(-) sample. They also suffered from more severe symptoms, higher levels of depression, anxiety and disability; and they received more active, passive and drug therapies.

Predictors of treatment satisfaction

Higher treatment satisfaction in the complete sample was significantly predicted by the time since FMS diagnosis

Table II. Multiple regression analysis of patient-related predictors of FMS-patients' treatment satisfaction.

Independent variable (predictor)	β -coefficient	Standard error	Standardised β -coefficient	T	p-value
Constant	2.54	0.75		3.37	0.001
Age	0.01	0.01	0.04	1.05	0.29
Gender	0.21	0.34	0.02	0.62	0.54
Living situation	0.05	0.18	0.01	0.26	0.79
Employment	0.05	0.18	0.01	0.27	0.79
Educational level	-0.04	0.07	-0.01	-0.51	0.61
Time since onset of chronic widespread pain	-0.02	0.01	-0.06	-1.93	0.054
Time since FMS-diagnosis	0.04	0.02	0.08	2.23	0.03
Polysymptomatic distress severity	-0.01	0.02	-0.02	-0.49	0.62
Depression score	-0.18	0.06	-0.11	-2.81	0.005
Anxiety score	0.02	0.06	0.01	0.30	0.76
Membership in self-help organisation	-0.23	0.17	-0.04	-1.35	0.18
Health status since FMS-diagnosis	0.35	0.04	0.23	7.91	<0.001
Active therapies, n	0.16	0.04	0.14	4.50	<0.001
Passive therapies, n	0.02	0.04	0.01	0.41	0.68
Drug classes, n	0.12	0.07	0.05	1.58	0.11

Significant results are marked in bold.

Table III. Multiple regression analysis of patient-related predictors of FMS-patients' treatment satisfaction in those patients fulfilling the ACR criteria.

Independent variable (predictor)	β -coefficient	Standard error	Standardised β -coefficient	T	p-value
Constant	2.06	0.83		2.482	0.01
Age	0.01	0.01	0.04	1.01	0.31
Gender	0.18	0.363	0.02	0.51	0.61
Living situation	0.04	0.20	0.01	0.19	0.85
Employment	0.10	0.18	0.02	0.52	0.61
Educational level	-0.07	0.08	-0.03	-0.85	0.40
Time since onset of chronic widespread pain	-0.02	0.01	-0.07	-1.98	0.048
Time since FMS-diagnosis	0.04	0.02	0.07	2.02	0.043
Polysymptomatic distress severity	0.01	0.02	0.01	0.40	0.69
Depression score	-0.20	0.07	-0.12	-2.98	0.003
Anxiety score	0.06	0.06	0.04	0.99	0.32
Membership in self-help organisation	-0.19	0.18	-0.03	-1.07	0.28
Health status since FMS-diagnosis	0.32	0.05	0.20	6.51	<0.001
Active therapies, n	0.16	0.04	0.14	4.17	<0.001
Passive therapies, n	0.05	0.04	0.04	1.09	0.28
Drug classes, n	0.15	0.08	0.06	1.84	0.07

Significant results are marked in bold.

($p=0.03$), improvement of health status since diagnosis ($p<0.001$), lower depression scores ($p=0.005$) and the number of current active treatments ($p<0.001$) (Table II). The results were mainly the same as the ACR(+) sample (additional factor: shorter time since onset of chronic widespread pain, $p=0.043$) (see Table III). In the ACR(-) sample the only significant predictor was improvement of health status since diagnosis ($p<0.001$) (Table IV).

Discussion

Summary of main findings

FMS-patients' satisfaction with their current treatment was assessed in a multicentred cross-sectional survey. There was considerable variety regarding treatment satisfaction in the sample with 50% of the patients, each being not very or very satisfied. Higher treatment satisfaction was predicted by longer time since diagnosis of FMS, improvement of health status since then, lower

depression scores and the number of active therapies currently applied for FMS treatment. In the ACR(+) subsample a shorter time since onset of chronic widespread pain also proved a significant predictor.

Relation to other studies

Treatment satisfaction is an important factor for both patients and providers. Findings on FMS-patients' treatment satisfaction have been sparse and inconclusive. While Wild and Müller (19) found high treatment satisfaction in German FMS-patients after inpatient rehabilitation, a multinational study by Choy *et al.* (18) found that half of the 800 patients were fairly satisfied and only one fifth was very satisfied with treatment. Since the former study (19) was conducted in patients after an inpatient treatment programme, the treatment satisfaction may have been overestimated due to the so-called "holiday effect" of inpatient treatment. The present study found that patients were mainly low to moderately satisfied with current treatment, which is more in line with Choy *et al.* (18).

Treatment satisfaction was higher in those patients with longer time since FMS diagnosis. For the subsample of ACR(+) patients, it was further associated with shorter time intervals since onset of chronic widespread pain. Nöller and Sprott (29) found that, despite constant complaints, many FMS-patients reported a better satisfaction with their health status over time, which might reflect some kind of mental adjustment to the disease and be in line with observations that a certain disease activity might be preferred over risk of therapy changes (30). This does contradict the present results.

The increased satisfaction in our sample might assumably be caused by the fact that without a correct diagnosis a patient might not receive proper treatment. After diagnosis they should receive more effective therapies. Over time patients might also figure out which therapies they benefit from and which therapies are ineffective. They also have the possibility to connect with other FMS-patients in self-help organisations. On the other hand, the

Table IV. Multiple regression analysis of patient-related predictors of FMS-patients' treatment satisfaction in patients not fulfilling the ACR criteria.

Independent variable (predictor)	β -coefficient	Standard error	Standardised β -coefficient	T	p-value
Constant	3.35	2.20		1.52	0.13
Age	-0.01	0.03	-0.02	-0.20	0.84
Gender	0.04	0.99	0.00	0.04	0.97
Living situation	0.19	0.58	0.03	0.33	0.74
Employment	-0.33	0.61	-0.05	-0.54	0.59
Educational level	.03	0.21	0.01	0.14	0.89
Time since onset of chronic widespread pain	-0.01	0.03	-0.05	-0.43	0.67
Time since FMS-diagnosis	0.05	0.05	0.10	0.88	0.38
Polysymptomatic distress severity	0.07	0.07	0.09	1.02	0.31
Depression score	-0.09	0.22	-0.05	-0.42	0.67
Anxiety score	-0.24	0.19	-0.13	-1.31	0.19
Membership in self-help organisation	-0.39	0.56	-0.06	-0.69	0.49
Health status since FMS-diagnosis	0.46	0.11	0.37	4.20	<0.001
Active therapies, n	0.21	0.11	0.18	1.90	0.06
Passive therapies, n	-0.15	0.13	-0.12	-1.22	0.23
Drug classes, n	-0.08	0.23	-0.03	-0.34	0.74

Significant results are marked in bold.

longer the patients suffer from pain, the less satisfied they might be.

Consistent with previous findings (18) regarding FMS and the results from a study that investigated patients with somatoform disorders (31), the regression analysis for the complete sample and the ACR(+) patients showed an association between treatment satisfaction and depressed mood. A systematic review (13) demonstrated the negative impact of depression on FMS-outcomes such as disability, quality of life and success of multicomponent treatment. From the present study it can also be concluded that depressive symptoms are associated with decreased treatment satisfaction. The association of negative FMS-outcomes in depression might be explained by the fact that a negative view of the self and the own (health) situation is a key feature of depression (27).

Finally, the regression analysis revealed that the amount of active therapies was an important predictor for patients' treatment satisfaction, *i.e.* the more patients participate in exercises or the like, the more they were satisfied. Contrary to the number of passive and drug therapies, which did not seem to influence patients' satisfaction, the participation in various kinds of exercises, relaxation and self-help strategies seems to reflect an effective coping style rather than just

display the absolute amount of therapies or drugs received. Multimodality of therapy that encourages patients to become active and use self-help strategies is considered important in chronic diseases such as back pain (31) or headache (32) and might be worthwhile for treatment and further investigation in FMS-patients (33, 34).

Interestingly for the ACR(-) patients who showed a better health status than the ACR(+) patients, no such association could be found. In those patients satisfaction was only related to the change of health status after diagnosis.

Limitations

The results might be limited by several factors such as the the sample itself, which was mainly female, middle-aged and by high proportion self-selected over the self-help organisations. No primary care centres were included in the study; however, it can be assumed that many patients from self-help groups are treated by primary care physicians. This seems to be supported by the data, *i.e.* patients from self-help organisation did actually report the same amount of therapies as did the patients from the clinical centres.

Of the patients analysed, 16.1% did not meet the modified ACR 2010 diagnostic criteria at study entry. However, longitudinal studies demonstrate

that many patients with FMS diagnosed by a physician switched between criteria-positive and criteria-negative states in the long run (35). Moreover, we performed a subgroup analysis of criteria-positive and criteria-negative patients and confirmed the results for the ACR(+) subsample.

Another limitation concerns the heterogeneous patient samples, *i.e.* self-help organisation members *vs.* clinical patients, inpatients *vs.* outpatients, conventional *vs.* complementary *vs.* psychosomatic medicine. These different facilities might use different approaches to enable the patients to actively engage in their treatment, which should influence their treatment satisfaction. However, the analysis included the amount of active, passive and drug therapies as possible predictors.

Besides the patient-related variables it has also been found that satisfaction with treatment depends on other non-patient-related outcomes such as change of health care provider as well quality of treatment (5, 36), however they were not assessed in the present study.

Finally, the survey did not utilise a validated translation of the patient satisfaction questionnaire because these questionnaires usually assess the satisfaction with a medical consultation and were therefore not considered applicable. The Symptom Severity Score might also have benefited from pretesting according to cross-cultural adaptation guidelines as did the Multidimensional Fatigue Inventory (MFI) (37).

Diagnosis of FMS symptoms also relied on patients report and no objective confirmation of the diagnosis was possible.

Finally, health care systems and probably expectations of patients on therapies differ in Europe. The results of our study might not be valid for patients in other European countries.

Conclusion

In conclusion, there was considerable variety regarding treatment satisfaction in FMS-patients. Higher treatment satisfaction was predicted time since diagnosis of FMS, improvement of health status since diagnosis, lower depression scores and the number of

active therapies currently applied for FMS treatment. These results illustrate the importance of patient-centred factors such as comorbid depression and active coping for treatment satisfaction in FMS.

References

- SÄILÄ T, MATTILA E, KAILA M, AALTO P, KAUNONEN M: Measuring patient assessments of the quality of outpatient care: a systematic review. *J Eval Clin Pract* 2008; 14: 148-54.
- HUSH JM, CAMERON K, MACKAY M: Patient satisfaction with musculoskeletal physical therapy care: a systematic review. *Phys Ther* 2001; 91: 25-36.
- ECKERT H, BÄHMER K, RESCH KL: Patientenzufriedenheit – Kundenzufriedenheit: Kritische Gedanken zu einem wichtigen Parameter der internen Qualitätssicherung. *Phys Med Rehab Kuror* 2000; 10: 37-42.
- DECK R: Der Einfluss von Reha-Erwartungen und Patientenzufriedenheit auf den Reha-Erfolg [Abstract]. *Gesundheitswesen* 2005; 67: V13.
- MARCHAND KI, OVIEDO-JOEKES E, GUH D, BRISSETTE S, MARSH DC, SCHECHTER MT: Client satisfaction among participants in a randomized trial comparing oral methadone and injectable diacetylmorphine for long-term opioid-dependency. *BMC Health Serv Res* 2011; 11: 174.
- HILLS R, KITCHEN S: Satisfaction with outpatient physiotherapy: A survey comparing the views of patients with acute and chronic musculoskeletal conditions. *Physiother Theory Pract* 2007; 23: 21-36.
- HALL JA, MILBURN MA, EPSTEIN AM: A causal model of health status and satisfaction with medical care. *Med Care* 1993; 31: 84-94.
- GREENLEY JR, YOUNG TB, SCHOENHERR RA: Psychological distress and patient satisfaction. *Med Care* 1982; 20: 373-85.
- RAHMQUIST M: Patient satisfaction in relation to age, health status and other background factors: a model for comparisons of care units. *Int J Qual Health Care* 2001; 13: 385-90.
- LARSSON BW: Patients' views on quality of care: age effects and identification of patient profiles. *J Clin Nurs* 1999; 8: 693-700.
- TUCKER JL: The moderators of patient satisfaction. *J Manag Med* 2002; 16: 48-66.
- HÄUSER W, ZIMMER C, FELDE E, KÖLLNER V: What are the key symptoms of fibromyalgia? Results of a survey of the German Fibromyalgia Association. *Schmerz* 2008; 22: 176-83.
- LANGE M, PETERMANN F: Influence of depression on fibromyalgia: A systematic review. *Schmerz* 2010; 24: 326-33.
- WOLFE F, CLAUW DJ, FITZCHARLES MA *et al.*: The American College of Rheumatology preliminary diagnostic criteria for fibromyalgia and measurement of symptom severity. *Arthritis Care Res (Hoboken)* 2010; 62: 600-10.
- BAZZICHI L, SERNISSI F, CONSENSI A, GIACOMELLI C, SARZI-PUTTINI P: Fibromyalgia: a critical digest of the recent literature. *Clin Exp Rheumatol* 2011; 29 (Suppl. 69): S1-11.
- WALKER EA, KATON J, KEEGAN D, GARDNER G, SULLIVAN M: Predictors of physicians frustration in the care of patients with rheumatological complaints. *Gen Hosp Psychiatry* 1997; 19: 315-23.
- DOBKIN PL, DE CIVITA M, ABRAHAMOVICZ M *et al.*: Patient-physician discordance in fibromyalgia. *J Rheumatol* 2003; 30: 1326-34.
- CHOY E, PERROT S, LEON T *et al.*: A patient survey of the impact of fibromyalgia and the journey to diagnosis. *BMC Health Serv Res* 2010; 26: 102.
- WILD J, MÜLLER W: Patient satisfaction in the rehabilitation of fibromyalgia inpatients. *Z Rheumatol* 2002; 61: 560-67.
- HÄUSER W, JUNG E, ERBSLÖH-MÖLLER B *et al.*: Der deutsche Fibromyalgie-Verbraucherbericht: Nutzen und Schaden von Behandlungen des Fibromyalgiesyndroms. *Schmerz* 2012; 26: 150-9.
- HÄUSER W, JUNG E, ERBSLÖH-MÖLLER B *et al.*: Validation of the Fibromyalgia Survey Questionnaire within a Cross-Sectional Survey. *PLoS ONE* 2012; 7: e37504.
- HÄUSER W, JUNG E, ERBSLÖH-MÖLLER B *et al.*: German fibromyalgia consumer reports - a cross-sectional survey. *BMC Musculoskeletal Disord* 2012; 13: 74.
- HÄUSER W, HAYO S, BIEWER W *et al.*: Diagnosis of fibromyalgia syndrome - a comparison of Association of the Medical Scientific Societies in Germany, survey, and American College of Rheumatology criteria. *Clin J Pain* 2010; 26: 505-11.
- WOLFE F: Pain extent and diagnosis: development and validation of the regional pain scale in 12,799 patients with rheumatic disease. *J Rheumatol* 2003; 30: 369-78.
- HÄUSER W, SCHILD S, KOSSEVA M *et al.*: Validation of the German version of the Regional Pain Scale for the diagnosis of fibromyalgia syndrome. *Schmerz* 2004; 24: 226-35.
- WOLFE F, CLAUW DJ, FITZCHARLES MA *et al.*: Fibromyalgia criteria and severity scales for clinical and epidemiological studies: a modification of the ACR Preliminary Diagnostic Criteria for Fibromyalgia. *J Rheumatol* 2010; 38: 1113-22.
- KROENKE K, SPITZER RL, JANNETT BW, WILLIAMS DSW, LÖWE B: An ultra-brief screening scale for anxiety and depression: The PHQ-4. *Psychosomatics* 2009; 50: 613-21.
- LÖWE B, WAHL I, ROSE M *et al.*: 4-item measure of depression and anxiety: validation and standardization of the Patient Health Questionnaire-4 (PHQ-4) in the general population. *J Affect Disord* 2010; 122: 86-95.
- NÖLLER V, SPROTT H: Prospective epidemiological observations on the course of the disease in fibromyalgia patients. *J Negat Results Biomed* 2003; 23: 4.
- PINCUS T, CASTREJÓN I, BERGMAN MJ, YAZICI Y: Treat-to-target: not as simple as it appears. *Clin Exp Rheumatol* 2012; 30 (Suppl. 73): S10-20.
- PFINGSTEN M, FRANZ C, HILDEBRANDT J, SAUR P, SEEGER D: Das Göttinger Rücken Intensiv Programm (GRIP) - ein multimodales Behandlungsprogramm für Patienten mit chronischen Rückenschmerzen, Teil 3. Psychosoziale Aspekte. *Schmerz* 1996; 10: 326-44.
- PAUL A, LAUCHE R, CRAMER H, ALTNER N, LANGHORST J, DOBOS G: An Integrative Day-Care Clinic for chronically ill patients: Concept and case presentation. *Europ J Integr Med* 2012; 4: E455-9.
- LEMPP HK, HATCH SL, CARVILLE SF, CHOY EH: Patients' experiences of living with and receiving treatment for fibromyalgia syndrome: a qualitative study. *BMC Musculoskeletal Disord* 2009; 10: 124.
- CARBONELL-BAEZA A, APARICIO VA, CHILLÓN P, FEMIA P, DELGADO-FERNANDEZ M, RUIZ JR: Effectiveness of multidisciplinary therapy on symptomatology and quality of life in women with fibromyalgia. *Clin Exp Rheumatol* 2011; 29 (Suppl. 69): S97-103.
- WALITT B, FITZCHARLES MA, HASSETT AL, KATZ RS, HÄUSER W, WOLFE F: The longitudinal outcome of fibromyalgia: a study of 1555 patients. *J Rheumatol* 2011; 38: 2238-46.
- FROSTHOLM L, FINK P, OERNBOEL E *et al.*: The uncertain consultation and patient satisfaction: the impact of patients' illness perceptions and a randomized controlled trial on the training of physicians' communication skills. *Psychosom Med* 2005; 67: 897-905.
- MUNGUÍA-IZQUIERDO D, SEGURA-JIMÉNEZ V, CAMILETTI-MOIRÓN D *et al.*: Multidimensional Fatigue Inventory: Spanish adaptation and psychometric properties for fibromyalgia patients. The Al-Andalus study. *Clin Exp Rheumatol* 2012; 30 (Suppl. 74): 94-102.