

Observational Study

e Fibromyalgia Impact Score in Women with Fibromyalgia Across Southern, Central, and Northern Areas of Europe

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Background: The Fibromyalgia Impact Questionnaire (FIQ) is the most used questionnaire worldwide to measure the health status of patients with fibromyalgia. The questionnaire has been subjected to several studies to analyze psychometric properties. However, norm scores and cultural differences have not been presented.

Objectives: To obtain and present norm scores for the FIQ in patients with fibromyalgia in different cultures, namely Southern, Central, and Northern areas of Europe.

Study Design: This observational study consisted of women with fibromyalgia from 4 countries (Spain, Belgium, the Netherlands, and Sweden) classified in 3 areas (Southern, Central, and Northern) in Europe.

Setting: Women with fibromyalgia from Spain, Belgium, the Netherlands, and Sweden.

Methods: The impact of fibromyalgia was assessed by the FIQ. A total of 1,478 women with fibromyalgia were asked to fill out the FIQ in the Spanish (n = 531), Dutch and Belgian (n = 629), or Swedish (n = 318) versions.

Results: The norm scores and percentiles score of the FIQ are presented. Norm scores differed between European areas (Southern area = 64.8 ± 15.9 ; Central area = 60.9 ± 15.7 ; Northern area = 62.8 ± 16.7). Perceived physical impairment, overall well-being (all, $P < 0.001$), FIQ total ($P < 0.01$), and morning tiredness ($P < 0.05$) in women with fibromyalgia from the Central area of Europe reported lower impact than Southern and Northern areas. The Northern area of Europe showed the lowest score of job difficulty, anxiety, depression (all, $P < 0.001$), and pain ($P < 0.01$), whereas the Southern area of Europe showed the lowest score of work missed subscale ($P < 0.001$) with regard to the rest of the areas studied.

Limitations: The selection of patients was conducted with just women because of the scarce prevalence of fibromyalgia among men. Moreover, sociodemographic status, socioeconomic status, and clinical characteristics were not measured. Similar research should be conducted with adequate representation of populations from other parts of the world.

Conclusions: Pairwise comparisons showed significant differences mainly between the Southern area versus Northern and Central areas of Europe. The impact of fibromyalgia showed mainly higher scores in women with fibromyalgia from the Southern area of Europe.

Key words: Symptom, psychometric, norm scores, European comparison

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Fibromyalgia is a syndrome defined by the presence of chronic widespread musculoskeletal pain and allodynia. In addition to pain, fibromyalgia is accompanied by other symptoms such as stiffness, depression, anxiety, fatigue, disturbed sleep, or cognitive dysfunction (1-2). Fibromyalgia has a considerable impact on symptomatology and on activities of daily living (3) because of the decrease in physical performance and physical function in people with fibromyalgia (4,5). Fibromyalgia is strongly associated with depressive and anxiety symptoms (6). Therefore, depression and anxiety might influence the ability of patients with fibromyalgia to engage in daily activities (7).

Fibromyalgia is a common syndrome in Western European countries, with an estimated prevalence of 2.9% representing approximately 6 million people (8). The prevalence rates of women with fibromyalgia are significantly higher than in men (8). The adult Spanish population has an estimated prevalence of fibromyalgia of 2.4%, mostly women (9), whereas in the Netherlands the prevalence of fibromyalgia is 2.1% in women (10). In Sweden, 2.5% of the population is affected by fibromyalgia and most of them are women (7).

Heterogeneity of fibromyalgia is characterized by a multitude of symptoms (11). Moreover, patients with fibromyalgia form a heterogeneous group with variations of number and impact of different symptoms (2). The Fibromyalgia Impact Questionnaire (FIQ) is the most frequently used questionnaire worldwide in patients with fibromyalgia. The questionnaire was first described in 1991 by Burckhardt et al (12). Since that publication, the FIQ has been translated into more than 16 languages and is used as an index of therapeutic efficacy. Overall, the original and translated FIQs have been shown to have credible construct validity, reliable test-retest characteristics, and a good sensitivity in demonstrating therapeutic change (13). The FIQ has been used worldwide by clinicians and scientists for evaluating interventions in patients with fibromyalgia. Nevertheless, norm scores for the clinical practice are missing. Reference data can allow comparisons that could be of clinical interest because of the importance of the FIQ to measure fibromyalgia impact.

Although there are several studies related with impact of fibromyalgia in women, comparative data among different countries and areas are still scarce. The present study aimed to provide reference data about the FIQ norm scores for women with fibromyalgia from Northern, Central, and Southern Europe.

METHODS

Setting and Patients

This observational study consisted of women with fibromyalgia from 4 countries (Spain, Belgium, the Netherlands, and Sweden) and classified in 3 areas (Southern, Central, and Northern) of Europe. In Spain, women with fibromyalgia were recruited from different fibromyalgia associations via e-mail, post, or telephone. Spanish (hereinafter referred to as the Southern area of Europe) women with fibromyalgia were recruited from the al-Ándalus Project (2). Belgian women with fibromyalgia were recruited through 2 specialized centers for chronic pain and chronic fatigue in Belgium before treatment (14). In addition, Dutch women with fibromyalgia from primary care physical therapy practices in the Netherlands were recruited. Both Belgian and Dutch samples hereinafter are referred to as the Central area of Europe. Swedish women with fibromyalgia were recruited from 3 different cities in Sweden (Gothenburg, Stockholm, and Linköping; hereinafter referred to as the Northern area of Europe) from primary health centers (15) and after advertising in newspapers (16-17).

The inclusion criteria of women with fibromyalgia from 3 areas of Europe were: (1) to be previously diagnosed by a rheumatologist; (2) to meet the 1990 American College of Rheumatology fibromyalgia criteria: widespread pain for > 3 months and pain with 4 kg/cm² of pressure for 11 or more of 18 tender points (18); and (3) not to have severe comorbidity or terminal illness. Men were excluded from the study sample (n = 191), and a total of 303 patients were excluded due to incomplete questionnaires. To achieve age-matched groups, women < 30 and > 69 years were not included in the present study (35 patients excluded). The final study comprised 1,478 women with fibromyalgia.

All gathered data were part of interventional studies. Written informed consent was accepted by all patients after receiving detailed information about the main objective and study procedures of the current project, which complied with guidelines of the Declaration of Helsinki (1964). The respective studies were reviewed and approved by the ethics committee of the "Hospital Virgen de las Nieves" (Granada, Spain), the medical ethical committee of the University Medical Centre in Groningen (the Netherlands), the medical ethical committee of the University Hospital Antwerp (Belgium), the ethics committee at Gothenburg University (Sweden), and the regional ethics committee in Stockholm (Sweden).

Procedure

All patients who participated were asked to fill out the FIQ in their own language before participating in the interventional study.

Measurement

Sociodemographic and clinical data (age and duration of pain) were collected by means of a self-reported questionnaire. The impact of fibromyalgia was measured by the FIQ.

The FIQ

The Spanish version (19), the Dutch version (20) (Dutch and Belgian patients), and the FIQ validated for a Swedish fibromyalgia population (21) were used to assess the fibromyalgia-related symptoms and impact in different countries.

The FIQ has a functional subscale (question 1) consisting of 11 functional items. Patients were asked to rate their functional status within the last week, rated on a 4-point Likert-type scale (score 0-3). Questions 2 and 3 report the number of days feeling good (range 0-7) and number of days unable to work, which included housework (range 0-7). Questions 4 through 10 are horizontal linear scales in which the patient rates difficulty in doing their job, level of pain, fatigue, morning tiredness, stiffness, anxiety, and depression (range 0-10). Items 1 to 3 are normalized to 10 points. Total score of the FIQ ranges from 0 to 100 points. The higher the score, the more functional impairment and symptoms are experienced.

Statistical Analyses

The normal distribution of data were studied using the Kolmogorov-Smirnov test. Percentages were calculated for demographic (range of age) and clinical variables (range of pain). The differences in FIQ subscales between patients with fibromyalgia from Southern, Central, and Northern areas of Europe were tested using analysis of covariance controlling for age and duration of pain in years. Comparison of age range and range of duration of pain between the 3 areas studied were performed using the chi-square test. The differences between subgroups of range of age and range of duration of pain in the 3 areas studied were carried out by the Bonferroni adjusted P values. When significant, post hoc analysis by pairwise comparisons with Scheffe's adjustment was performed to identify between which areas the differences were significant (e.g., Northern area vs. Southern area).

To distinguish between areas of Europe (Southern, Center, and Northern) that could better characterize the impact of fibromyalgia, the mean age and mean duration of pain in years, the mean value and standard deviation (SD) was created for all outcomes. Similarly, mean value and SD were calculated to all FIQ subitems.

All statistical analyses were performed using the Statistical Package for Social Sciences Version 20.0 for Windows (IBM Corporation, Armonk, NY). The level of significance was set at $P < 0.05$.

RESULTS

The final study comprised 1,478 women with fibromyalgia from the Southern area ($n = 531$, 52.27 ± 7.73 years), Central area ($n = 629$, 49.17 ± 8.39 years), and Northern area ($n = 318$, 49.59 ± 8.04 years). Age, range of age, duration of pain, and range of duration of pain are presented in Table 1. All sociodemographic and clinical characteristics showed small but significant differences between the areas of Europe (all, $P < 0.001$).

The comparison between scores for FIQ subscales and FIQ total of the Southern area, Central area, and Northern area are presented in Table 2. Pairwise comparisons showed more physical impairment in the Northern area compared with Southern and Central areas, and more physical impairment in the Southern area compared with the Central area. Overall well-being was significantly lower in the Southern area compared with Central and Northern areas, and lower in the Northern area compared with the Central area. In the Southern area, fibromyalgia conflicted less with work (days missed) than in Central and Northern areas. In the Southern area, pain was significantly worse compared with the Northern area. Job difficulty, anxiety, and depression were significantly worse in the Southern area compared with the Northern and Central areas, and the Central area compared with the Northern area. Finally, morning tiredness and FIQ total were worse in the Southern area compared with the Central area.

In Table 3, the comparison between norm scores of the Southern area, Central area, and Northern area are presented in percentile scores. The Southern area experienced higher FIQ total score in all percentiles (from 10th percentile = 43.91 to 90th percentile = 83.43), whereas the Central area reported the lowest FIQ total score (from 10th percentile = 40.33 to 90th percentile = 80.62). However, differences between Southern and Northern areas are small in the third quartile (Southern area = 76.51; Northern area = 76.42) and 90th percentile (Southern area = 83.43; Northern area = 83.39).

Table 1. Sociodemographic and clinical characteristics of the study samples.

		Southern Area (n = 531) Mean (SD)	Central Area (n = 629) Mean (SD)	Northern Area (n = 318) Mean (SD)	
Age		52.27 (7.73)ab	49.17 (8.39)a	49.59 (8.04)b	<0.001†
Duration of pain in years		11.08 (2.69)a	12.66 (7.35)ab	10.76 (6.91)b	<0.001†
Range of age		n (%)	n (%)	n (%)	<0.001‡
	30-39 years	38 (7.2)	90 (14.3)	40 (12.6)	
	40-49 years	154 (29.0)	234 (37.2)	104 (32.7)	
	50-59 years	242 (45.6)	228 (36.2)	149 (46.9)	
	60-69 years	97 (18.3)	77 (12.2)	25 (7.9)	
Range of duration of pain (years)					<0.001‡
	< 5 years	20 (3.8)	109 (17.3)	84 (26.4)*	
	5-10 years	196 (36.9)	138 (21.9)	99 (31.1)	
	> 10 years	315 (59.3)	382 (60.7)	135 (42.5)	

†P values calculated by analysis of variance; ‡P values calculated by the chi-square test between all samples studied. The asterisk (*) represents those subgroups statistically different between nationalities by the Bonferroni adjusted P values. a,b,cCommon superscripts in the same row indicate a significant difference ($P < 0.05$) between the groups with the same letter. Pairwise comparisons were performed with Scheffe's adjustment

Table 2. The FIQ subscales in all samples studied.

	Southern Area (n = 531) Mean (SD)	Central Area (n = 629) Mean (SD)	Northern Area (n = 318) Mean (SD)	P value*
Subscales of FIQ (range 0-100)	Mean (SD)	Mean (SD)	Mean (SD)	
Physical impairment	3.79 (2.08)ab	2.28 (1.99)ac	4.41 (2.27)bc	< 0.001
Overall well-being	7.74 (2.63)ab	5.58 (3.17)ac	7.20 (2.78)bc	< 0.001
Work missed	3.48 (3.51)ab	5.61 (3.35)a	5.72 (4.28)b	< 0.001
Job difficulty	7.13 (2.11)ab	6.67 (2.98)a	6.43 (2.61)b	< 0.001
Pain	7.16 (1.89)a	6.96 (2.15)	6.67 (1.97)a	0.002
Fatigue	7.94 (1.77)	7.82 (2.20)	7.96 (1.92)	0.183
Morning tiredness	7.91 (2.05)a	7.58 (2.32)a	7.91 (2.04)	0.017
Stiffness	7.28 (2.32)	7.37 (2.33)	7.09 (2.26)	0.225
Anxiety	6.41 (2.79)ab	5.20 (3.02)a	5.01 (3.21)b	< 0.001
Depression	5.88 (3.08)ab	4.45 (2.97)a	4.36 (3.12)b	< 0.001
FIQ total	64.80 (15.95)a	60.87 (15.71)a	62.85 (16.69)	< 0.001

*Significant difference between nationalities and FIQ subscales (analysis of covariance controlling for age and duration of pain in years). a,b,cCommon superscripts in the same row indicate a significant difference ($P < 0.05$) between the groups with the same letter. Pairwise comparisons were performed with Scheffe's adjustment

DISCUSSION

The present study aimed to provide reference data about the FIQ norm scores for women with fibromyalgia from Northern, Central, and Southern Europe. These norm scores can be used for the comparison of individual patients and to interpret the impact of fibro-

myalgia severity on quality of life of these women.

Overall, we can conclude that the quality of life in women with fibromyalgia from the Southern area is worse in several domains. Although statistical significance does not always mean clinically relevant, several differences seem clinically relevantly lower.

The large differences shown in the impact of fibromyalgia by means of FIQ subscales confirmed the different impact level of fibromyalgia depending on location or cultural differences in the study samples. Former studies already showed that differences exist between cultures (22), patterns as race and ethnicity (23), or geographical variations in reported symptoms of patients with chronic widespread musculoskeletal pain such as fibromyalgia (7). Moreover, the economic situation of each sample studied is important because the overall economic influence might be related with the impact of musculoskeletal disorders (7).

Some limitations of this study need to be mentioned. First, the study was conducted just with women with fibromyalgia, and thus generalization of the results to men with fibromyalgia should be avoided. Second, the recruitment of women with fibromyalgia was different in the areas of Europe. Third, several sociodemographic status, socioeconomic status, and clinical characteristics were not measured.

CONCLUSIONS

The impact of fibromyalgia is higher in women with fibromyalgia from Southern Europe, except for work missed. Patients from Central Europe showed lower norm scores in physical impairment and overall well-being, whereas patients from the Northern area experienced less depression and anxiety.

Table 3. Percentiles for FIQ total in all samples studied.

FIQ total	Southern Area (n = 531)	Central Area (n = 629)	Northern Area (n = 318)	Total (n = 1,478)
Percentiles				
10	43.91	40.33	40.59	41.37
25	55.60	50.08	52.21	52.38
50	66.44	62.43	63.94	64.29
75	76.51	72.85	76.42	74.52
90	83.43	80.62	83.39	82.20

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Author contributions: Dr. Ruiz-Montero had full access to all the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analyses. Dr. Ruiz-Montero, Dr. van Wilgen, and Dr. Delgado-Fernández designed the study protocol. Dr. Ruiz-Montero, Dr. Segura-Jimenez, and Dr. Álvarez-Gallardo managed the literature searches and summaries of previous related work and wrote the first draft of the manuscript. All coauthors provided revision for intellectual content and final approval of the manuscript.

Conflict of interest: All authors have no conflicts of interest to report. None of the authors of the manuscript received any remuneration. Further, the authors have not received any reimbursement or honorarium in any other manner. All the authors are members of the physical activity or physiotherapy school from several universities. Dr. van Wilgen, Dr. Mannerkorpi, and Dr. Nijs are experts in rehabilitation and are practicing interventional pain physicians.

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