

Validation of an Italian version of the Fibromyalgia Impact Questionnaire (FIQ-I)

P. Sarzi-Puttini, F. Atzeni, T. Fiorini, B. Panni, G. Randisi, M. Turiel, M. Carrabba

*Department of Rheumatology and Internal Medicine, University Hospital
L. Sacco, Milan, Italy*

Abstract

Objective

To validate a translated Italian version of the Fibromyalgia Impact Questionnaire (FIQ).

Methods

The Italian version of the FIQ was administered to 50 patients affected by fibromyalgia (FM) (48 patients filled out the questionnaire again 10 days later) together with the Italian version of the Stanford Health Assessment Questionnaire (HAQ), the Medical Outcomes Survey Short Form-36 (SF-36), and a tender point count (TPC) obtained by summing the score (0-3) of each tender point tested by thumb palpation. All patients were asked about the severity of pain today (10 cm visual analog scale) and the duration of symptoms. Test-retest reliability was assessed using Spearman correlations. Internal consistency was evaluated with Cronbach's alpha of reliability. Construct validity of the FIQ was evaluated by correlations between the HAQ and subscales of the SF-36 as well as the TPC.

Results

The mean duration of symptoms was 6.5 years and the mean age of the participants was 57.4 years. Test-retest reliability was between 0.74 and 0.95 for physical functioning as well as for the total FIQ and other components. Internal consistency was 0.90 for the overall FIQ. Significant correlations were obtained between the FIQ items, the HAQ and the SF-36.

Conclusions

The Italian FIQ is a reliable and valid instrument for detecting and measuring functional disability and health status in Italian patients with FM.

Key words

Italian version, Fibromyalgia Impact Questionnaire, validation, disability, tender point count.

P Sarzi-Puttini, MD; F. Atzeni, MD; T. Fiorini, MD; B Panni, MD; M Carrabba, Professor, Rheumatology Unit; M Turiel, Associate Professor, Internal Medicine Department, University of Milan.

Please address correspondence to:
Dr. Piercarlo Sarzi-Puttini, Rheumatology Unit, Department of Internal Medicine, University Hospital L Sacco, Via G.B. Grassi 74, 20157 Milan, Italy.
E-mail: sarzi@tiscalinet.it

Received on January 31, 2003; accepted in revised form on April 14, 2003.

© Copyright CLINICAL AND EXPERIMENTAL RHEUMATOLOGY 2003.

Introduction

Fibromyalgia (FM) is a clinical entity of unknown origin characterized by widespread musculoskeletal pain, the presence of tender points (areas of increased tenderness to palpation), and additional symptoms such as disturbed sleep, stiffness, fatigue and psychological distress (1, 2). However, the predominant symptoms for the majority of FM patients are persistent pain and muscular fatigue with a considerable impact on function and health status (3, 4). Many valid instruments to evaluate functional capacity in rheumatic diseases have been recently developed. Some of these, such as the Health Assessment Questionnaire (HAQ) (5) and the Arthritis Impact Measurement Scale (AIMS) (6), are designed for patients with rheumatoid arthritis. Portions of the HAQ and AIMS have been used in studies of FM to assess disease severity in different contexts and to determine the intermediate and long-term outcomes of this illness (7, 8).

The Fibromyalgia Impact Questionnaire (FIQ) was developed by Burckhardt *et al.* (9) as an instrument to assess the current health status of FM women. The FIQ is a 10-item self-administered instrument that measures physical functioning, work status, depression, anxiety, sleep, pain, stiffness, fatigue and well being. The FIQ has been used as a primary endpoint in clinical trials in order to evaluate the efficacy of different interventions in FM (10-12) and has been translated into various languages; these versions have shown comparable metric properties, reliability and validity to the original version (12-16).

Our objective was to translate the FIQ into Italian and to evaluate its reliability and validity for use in patients affected by FM in Italy.

Materials and methods

Patients. Fifty patients affected by FM were included in this validation study. The diagnosis was made according to the 1990 American College of Rheumatology (ACR) criteria for FM (17) by a physician in the Department of Rheumatology.

Assessment of tenderness. In accor-

dance with the 1990 ACR criteria, 18 sites (9 pairs of tender points sites) were studied by thumb palpation and each tender point was graded on a Likert scale (0-3, with 3 corresponding to maximum pain).

Translation of the FIQ. Two researchers aware of the objective of the questionnaire carried out the first translation. Then two different bilingual persons who had no knowledge of the instrument translated the questionnaire back into English. No significant cultural adaptations were made.

FIQ questionnaire. The FIQ is an instrument that was developed to measure FM patient status, progress and outcomes. It was therefore designed to measure the components of health status which are believed to be most affected by FM. The first part contains 10 sub-items and focuses on the patient's ability to perform daily tasks involving the large muscles (i.e. cooking, cleaning, walking, shopping, homemaking, socializing, mobility etc). The responses are distributed on a Likert scale from 0 (always able to do) to 3 (never able to do). The 10 sub-items are summed up and divided by the number of valid scores to yield one physical functioning score. The next 2 items ask patients to circle the number of days in the past week that they felt good and the number of days that they missed work. The last 7 items – ability to do one's job, pain, fatigue, morning tiredness, stiffness, anxiety and depression – were all scored on a 0-10 scale, with ten indicating maximum impairment (8). The items concerning physical impairment, "number of days felt good", and "number of days missed work" are then subjected to a normalization procedure so that their scores can be expressed on a scale ranging from 0 to 10, with 10 indicating greater impairment. A total score of the FIQ is calculated by adding the following 10 items: the physical functioning score, number of days felt good, number of workdays missed, ability to do the job, pain, fatigue, morning tiredness, stiffness, anxiety and depression; the FIQ ranges from 0 to 100, with 100 indicating maximum FM impact.

Pain assessment. Pain was assessed

using a VAS scale of current pain severity and a tender point count (TPC). The patient rates each region on a scale from 0 to 3 (no pain to extreme pain). A total score is calculated by adding all regions. The highest possible score is 54.

HAQ. Patient-reported assessments of current functional limitations were collected with the HAQ. The HAQ is a well validated and frequently used scale for measuring disease-specific physical disability among patients with a rheumatic disease. The HAQ has been translated into numerous languages including a reliable Italian version (18). It consists of 20 items divided into 8 groups of functional limitations of the lower and upper extremities. In patients with rheumatoid arthritis, the HAQ has been described as a valid measure for detecting both current inflammatory activity and structural damage resulting from joint destruction. In this study, the alternative coding procedure of the items has been described by Tomlings (19).

Short Form-36. The Medical Outcome Survey Short Form-36 (SF-36) is a 36-item instrument for measuring health status and outcomes from the patient's point of view and has been translated and validated in numerous languages including Italian (20-22). The SF-36 measures the following 8 health concepts: limitation in physical activities, limitation in usual role activities, bodily pain, general health perception, vitality (energy and fatigue), limitation in social activities, limitation in usual role activities because of emotional problems, and mental health (psychological distress and well being). Scoring was carried out according to published guidelines (23). Except for the subscale 'bodily pain', higher scores denote fewer limitations or distress for the different parameters.

Study design. Participants underwent a clinical examination at baseline to be included in this study and were provided with a written questionnaire to be filled out and mailed back to the clinic. To assess the test-retest reliability, the questionnaire was mailed again after 10 days to all 50 patients. The questionnaire consisted of self-administered

scales focused on pain, health status, and social and psychological functioning.

Statistical analyses. The test-retest reliability of the items with a 10-day interval between measurement points was investigated by computing the Spearman's rank correlations. Internal reliability was assessed by Cronbach's alpha coefficient. To test construct validity, Spearman's correlation coefficient was used to assess the relationship between items of the FIQ, disease activity and the different questionnaires. Statistical analysis was performed using SPSS version 9.01 for Windows (Chicago, USA).

Results

Descriptive analyses of the sociodemographic and clinical characteristics of the 50 patients (48 females, 2 males) are shown in Table I. The mean age of the 50 patients was 57.4 (range 18 - 70) and the mean disease duration was 6.5 yrs (range 0.6 - 20 yrs).

Table II reported the means and standard deviations (SD) of the separate components of the FIQ. The mean value (SD) for the first FIQ was 57.2 ± 12.8 . After ten days, 48 patients filled out the FIQ again. Spearman correlations for test-retest reliability in this sub-sample of 48 patients were computed to confirm the psychometric properties of the items and the overall scale with respect to its reliability. The estimates of the Spearman coefficients ranged from 0.74 for anxiety to 0.95 for "ability to do job" (Table III).

The internal consistency of the overall FIQ scale was $\alpha = 0.90$. A similarly high internal consistency was found for the 10-item physical functioning component ($\alpha = 0.94$) and for the 7 items referring to the last week ($\alpha = 0.82$).

In testing the construct validity, Spearman's correlation coefficient were computed between the FIQ and the different questionnaires. These correlations are summarized in Table IV.

Most of the correlations of the total HAQ score with the FIQ items and the overall score were moderate to highly significant, ranging from 0.26 (morning tiredness) to 0.84 (pain). The corre-

Table I. Sociodemographic variables and duration of symptoms.

No. of patients	50
F/M	48/2
Mean age (years) ($\pm$ SD)	57.4 ($\pm$ 14.2)
Mean duration of disease (yrs) ($\pm$ SD)	6.5 ($\pm$ 5.5)
Marital status %	
Married	70.0
Divorced	12.5
Never married	17.5
Employment status %	
Working full time	29.5
Working part-time	20.0
Unemployed	17.0
Pensioned	33.0
Homemaker	10.5
Education %	
< 8 yrs	35
9-13 yrs	40
> 13 yrs	15

Table II. Mean score and standard deviation for each Italian FIQ (FIQ-I) item (scale range 0-10) and the total FIQ-I score.

FIQ item	Score	
	Mean	SD
Physical functioning*	4.2	2.1
No days felt good*	7.5	2.3
No workdays missed*	1.0	1.2
Ability to do job*	7.0	2.4
Pain*	7.3	2.1
Fatigue*	7.2	2.2
Tiredness*	5.9	2.3
Stiffness*	4.8	1.9
Anxiety*	6.2	2.7
Depression*	6.8	3.2
Total FIQ-I*	57.2	12.8

*Total Italian FIQ score (0-100, calculated using all 10 items).

lations of the physical functioning item with pain variables, the total HAQ score, and the subscale physical functioning of the SF-36 ranged from 0.54 to -0.71 ($p < 0.01$) (Table IV). Substantial correlations were obtained between the subscale of mental health of the SF-36 and the items anxiety and depression of the FIQ with correlation coefficient of -0.56 and -0.67, respectively (Table IV).

Correlation of the tender point count and the FIQ items and the total FIQ were moderate, ranging from 0.21 to 0.62 with most of the items achieving a statistical significance (Table IV).

Table III. Test-retest reliability coefficients (Spearman) for the Italian FIQ (FIQ-I).

Item	Coefficient
Physical functioning	0.77
Number of days felt good	0.68
Number of work days missed	0.70
Ability to do job	0.95
Pain	0.80
Fatigue	0.78
Morning tiredness	0.76
Stiffness	0.82
Anxiety	0.74
Depression	0.82
Total FIQ-I	0.90

Discussion

In this study, the translation and adaptation of the FIQ for an Italian context did not require any major cultural adaptation since the similarity between the two cultures (American and Italian) is high. In fact, most of the items could be translated literally. We found the translated version of the FIQ to be reliable and valid. Test-retest reliability for the items in the physical functioning component and the overall FIQ score were of a relatively large magnitude (0.77 and 0.90) and those for the remaining items were somewhat smaller. All were within the range of values reported by Burckhardt *et al.* (9) for the original FIQ and those of the Hebrew validation study (12) and the Swedish adaptation (13).

The FIQ evaluates in a self-administered multiple question model various aspects of FM, in particular disease impairment, disability, and emotional quality of life. In fact, the internal consistency of the 10-item physical functioning component was quite satisfactory, as represented by a Cronbach alpha of 0.94 and with a corresponding value for the overall FIQ scale of alpha = 0.92, indicating that the components of the instrument measure the same construct. A similar level of internal consistency has been reported for another sample.

When compared with the Israeli study (12), the FM patients in our validation sample reported similar disease severity, as represented by all measures of physical and psychological functioning. At the same time, our sample was more heterogeneous, as shown by the estimates of the SD, which were of somewhat larger size.

A good correlation of the FIQ items and the total score with the HAQ was observed, in substantial agreement with the Swedish validation study (13). The subscale 'mental health' of the SF-36 correlated significantly with the items of 'anxiety' and 'depression' in the FIQ, demonstrating the good construct validity of the psychological components of the translated FIQ (14).

In agreement with the Israeli study, the self-reported tender point counts and subjective pain (VAS) showed a partic-

ularly strong correlation with the overall FIQ score. In other studies (15, 16) the correlation between the TPC and FIQ items was lower, suggesting that the patients selected for these studies could be less severely affected and/or with different socio-demographic characteristics (a shorter disease duration). In conclusion, the Italian version of the FIQ was found to be a reliable and valid instrument for measuring functional disability in Italian-speaking FM patients.

References

- HENRIKSSON C, GUNDMARK I, BENGTSSON A, EK A: Living with fibromyalgia. Consequences for everyday life. *Clin J Pain* 1992; 8: 138-44.
- GOLDENBERG DL: Fibromyalgia syndrome: An emerging but controversial condition. *JAMA* 1987; 257: 2782-7.
- FRIES JF, SPITZ P, KRAINNES RG, HOLMAN HR: Measurement of patient outcome in arthritis. *Arthritis Rheum* 1980; 23: 137-45.
- CATHEY MA, WOLFE F, KLEINHEKSEL SM: Functional ability and work status in patients with fibromyalgia. *Arthritis Care Res* 1988; 1: 85-98.
- MEENAN RF, GERTMAN PM, MASON JH: Measuring health status in arthritis: The Arthritis Impact Measurement Scale. *Arthritis Rheum* 1980; 23: 146-52.
- BUCKELEW SP, HUYSER B, HEWETT JE *et al.*: Self-efficacy predicting outcome among fibromyalgia subjects. *Arthritis Care Res* 1996; 9: 97-104.
- WOLFE F, ANDERSON J, HARKNESS D *et al.*: Health status and disease severity in fibromyalgia. Results of six-center longitudinal study. *Arthritis Rheum* 1997; 40: 1571-9.
- BURCKHARDT CS, CLARK SR, BENNETT RM: The Fibromyalgia Impact Questionnaire: Development and validation. *J Rheumatol* 1991; 18: 728-33.
- BURCKHARDT CS, MANNERKOPI K, HEDENBERG L, BJELLE A: A randomised, controlled clinical trial of education and physical training for women with fibromyalgia. *J Rheumatol* 1994; 21: 714-20.
- BENNETT RM, BURCKHARDT CS, CLARK SR, O'REILLY CA, WIENS AN, CAMPBELL SM: Group treatment of fibromyalgia: a 6-month outpatient program. *J Rheumatol* 1996; 23: 521-8.
- MARTIN L, NUTTING A, MACINTOSH BR, EDWORTHY SM, BUTTERWICK D, COOK J: An exercise program in the treatment of fibromyalgia. *J Rheumatol* 1996; 23: 1050-3.
- BUSKILA D, NEUMANN L: Assessing functional disability and health status of women with fibromyalgia: Validation of a Hebrew version of the Fibromyalgia Impact Questionnaire. *J Rheumatol* 1996; 23: 903-6.
- HEDIN PJ, HAMNE M, BURCKHARDT CS, ENGSTROM-LAURENT A: The Fibromyalgia Impact Questionnaire, a Swedish translation of a new tool for evaluation of the fibromyal-

Table IV. Validity testing of the FIQ (n = 50) with Spearman rank correlation coefficient.

FIQ Item	Current pain (VAS)	TPC	HAQ	SF-36 PF	SF-36 MH
Physical functioning	0.54**	0.62**	0.63**	-0.71**	
Number of days felt good	0.30*	0.46**	0.49**	-0.21	
Number of work days missed	0.60**	0.40*	0.31	-0.27	
Ability to do job	0.70**	0.55**	0.58**	-0.54**	
Pain	0.78**	0.42*	0.84**	-0.60**	
Fatigue	0.42*	0.52**	0.30*	-0.56**	
Morning tiredness	0.33*	0.21	0.26	-0.19	
Stiffness	0.25	0.28	0.37*	-0.24	
Anxiety	0.65**	0.48**	0.64**	-0.59**	-0.56**
Depression	0.62**	0.41*	0.39**	-0.48**	-0.67**
Total FIQ	0.74**	0.53**	0.50**	-0.43**	

* p < 0.05; ** p < 0.01

TPC : tender point count; HAQ: Health Assessment Questionnaire; SF-36 subscales; PF: physical functioning; MH: mental health.

- gia patients. *Scand J Rheumatol* 1995; 24: 69-75.
14. OFFENBAECHER M, WALTZ M, SCHOEPS P: Validation of a German version of the Fibromyalgia Impact Questionnaire (FIQ-G). *J Rheumatol* 2000; 27: 1984-8.
15. KIM YA, LEE SS, PARK K: Validation of a Korean version of the Fibromyalgia Impact Questionnaire. *J Korean Med Sci* 2002; 17: 220-4.
16. SARMER S, ERGIN S, YAVUZER G. The validity and reliability of the Turkish version of the Fibromyalgia Impact Questionnaire. *Rheumatol Int* 2000; 20: 9-12.
17. WOLFE F, SMYTHE HA, YUNUS MB *et al.*: The American College of Rheumatology criteria for the classification of fibromyalgia. Report of the multicenter criteria committee. *Arthritis Rheum* 1990; 33: 160-72.
18. RANZA R, MARCHESONI A, CALORI G *et al.*: The Italian version of the functional disability index of the health assessment questionnaire. A reliable instrument for multicenter studies in rheumatoid arthritis. *Clin Exp Rheumatol* 1993; 11: 123-8.
19. TOMLINGS GS, HOLM MB, ROGER JC, KWOH CK: Comparison of standard and alternative HAQ scoring procedures for documenting functional outcomes in patients with RA. *J Rheumatol* 1996; 23: 1524-30.
20. APOLONE G, MOSCONI P, WARE JE: Questionario sullo stato di salute SF-36. Traduzione e validazione della versione italiana: Risultati del progetto IQOLA. *Medic* 1997; 5: 86-94.
21. BRUHLMANN P, STUCKI G, MICHEL BA: Evaluation of a German version of the physical dimensions of the Health Assessment Questionnaire in patients with rheumatoid arthritis. *J Rheumatol* 1994; 21: 1245-9.
22. BULLINGER M: German translation and psychometric testing of the SF-36 Health Survey: preliminary results from the Iqola Project. *Soc Sci Med* 1995; 41: 1359-66.
23. WARE JE, SNOW KK, KOSINSKI M, GANDEK B: *SF-36: Health Survey Manual and Interpretation Guide*. Boston, New England Medical Center, The Health Institute, 1993.

APPENDIX -The ITALIAN VERSION OF THE FIQ

Nome e Cognome _____

Data _____

VERSIONE ITALIANA FIQ. (Fibromyalgia Impact Questionnaire)

Istruzioni per la compilazione: dalla domanda n.1 alla n.10 indicare con una x il numero che esprime meglio la Sua condizione di salute prevalente nell'ultima settimana. Se normalmente non pratica l'attività descritta, passi alla successiva senza segnare alcuna risposta.

1. Nel corso dell'ultima settimana è stato/o in grado di:

	Sempre	Quasi sempre	Qualche volta	Mai
<u>1. Andare a fare la spesa ?</u>	0	1	2	3
<u>2. Fare il bucato ?</u>	0	1	2	3
<u>3. Preparare i pasti ?</u>	0	1	2	3
<u>4. Lavare i piatti ?</u>	0	1	2	3
<u>5. Passare l'aspirapolvere ?</u>	0	1	2	3
<u>6. Rifare i letti ?</u>	0	1	2	3
<u>7. Camminare per alcuni isolati ?</u>	0	1	2	3
<u>8. Andare a trovare amici o parenti ?</u>	0	1	2	3
<u>9. Fare lavori di giardinaggio ?</u>	0	1	2	3
<u>10. Guidare l'automobile ?</u>	0	1	2	3

2. Per quanti giorni è stata bene nell'ultima settimana ?

0 1 2 3 4 5 6 7

3. Per quanti giorni, nell'ultima settimana, non Le è stato possibile andare al lavoro o fare i lavori domestici a causa della fibromialgia ?

0 1 2 3 4 5 6 7

VERSIONE ITALIANA F.I.Q.

Nome e Cognome _____
Data _____

Data

Istruzioni per la compilazione : nelle restanti domande, segnare il punto sulla linea che esprime al meglio la Sua condizione di salute prevalente nell'ultima settimana.

4. Quanto il dolore o gli altri sintomi della fibrosialgia hanno interferito con la capacità di svolgere il Suo lavoro, comprese le faccende domestiche ?

Difficoltà	Numero di risposte
Nessuna difficoltà	10
Difficoltà moderata	0
Estrema difficoltà	0

Nessuna difficoltà

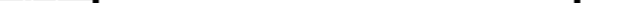
Estrema difficoltà

5. Quanto è stato forte il suo dolore ?

Nesum dolore

Molto forte

6. Quanto si è sentita/o stanco/a?



Nessuna stanchezza
 Molto stanca/o

Nessima stanchezza

Molto stanca/o

7.Come si è sentita/o al risveglio?

Ben riposata/o					Molto stanca/o				

Ben. riposata/o

Molto stanca/o

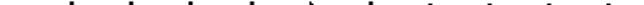
5. Quanto si è sentita/o rigida ?

Nessuna rigidità Molto forte

Nessuna rigidità

Molta forte

9.Come descriverebbe il Suo grado di ansia e nervosismo ?

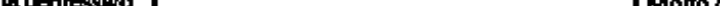


Per nulla ansioso/a
Molto ansioso/a

Per nulla ansioso/a

Molto ansioso/a

10 Come descriverebbe il suo grado di malinconia o depressione?



Per nulla depressa/o

Molto densa/o