
Relationship of severity of depression, anxiety and stress with severity of fibromyalgia

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ABSTRACT

Objectives. Negative affects such as depression, anxiety and stress are frequently observed in patients with fibromyalgia (FMS). Understanding the association between FMS and negative affects is likely to help in deciding the choice of treatment. The aim of this study was to determine the correlation between the severity of FMS with the severity of depression, anxiety and stress.

Methods. Sixty patients with fibromyalgia and 60 healthy controls were included in the study. Fibromyalgia Impact Questionnaire Revised (FIQR), and Depression, Anxiety and Stress Scale (DASS21) were administered to both the groups. The mean age of study population was 40.4±9.9 and 36±8.7 for FMS and control groups, respectively. Most of the patients were females (93.3%).

Results. In subjects without FMS, depression was seen in 5% and was significantly associated with all three components of FIQR ($p<0.01$), namely pain, symptoms and functional impairment. However, patients with FMS suffered more from all three components assessed in FIQR than those without FMS. In patients with FMS the severity of depression, anxiety and stress were found significantly associated with the severity of all three components of FIQR, namely pain, function and symptoms ($p<0.01$).

Conclusions. The results suggest that FMS is associated with depression, anxiety and stress and in FMS magnitude of negative affects is significantly correlated with FIQR. However, depression alone in absence of FMS can also give rise to all three components of FIQR.

Introduction

Fibromyalgia syndrome (FMS) is characterised by widespread pain, hyper sensitivity to palpation at specific body locations (tender points) (1) and a range of co-morbid physical symptoms and functional limitations, including persistent fatigue, sleep disturbance, feel-

ings of stiffness, headaches and irritable bowel disorders (1). Patients also report cognitive impairment and general malaise sometimes referred as “fibro fog” (2). Depression is reported to be particularly prevalent in FMS, leading some to suggest that it is a depressive spectrum disorder (3-10). The presence of depressive symptoms is associated with a great impairment in patients with fibromyalgia syndrome: indeed psychiatric co-morbidity lowers pain threshold and worsens the quality of life of patients (6). Wilke (2010) reported a high prevalence of positive testing for bipolar disorder in fibromyalgia cohort. Substantial lifetime psychiatric co-morbidity was found in individuals with fibromyalgia (8). Outcomes of a study conducted by Raphael *et al.* (2004) (9) were also consistent with the hypothesis that FMS is a depression spectrum disorder. Hudson *et al.* (2004) (10) also reported similar findings. However, FMS is not part and parcel of depression as not all the patients with fibromyalgia have depression. Houdenove and Luyten (2006) (11) suggested that there is evidence that FMS can be best understood psychologically as well as neurobiologically against the background of modern stress and depression research. Depression, anxiety and stress are negative psychological states that are frequently observed in patients with rheumatoid arthritis (RA), fibromyalgia syndrome (FMS), osteoarthritis (OA), and ankylosing spondylitis (AS) (12). Depression is treatable, hence it is important to grade this problem. The present study aims to correlate severity of depression with severity of FMS. Besides focussing on anxiety and depression the present study has also tried to identify stress as a possible factor behind FMS.

Material and methods

Sixty patients of primary fibromyalgia, who fulfilled the ACR criteria, were included in the study. Sixty

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Table I. Percentage of negative affects in both fibromyalgia. Patients and control groups.

Negative affects	Patients (n=60) %	Control (n=60) %
Depression	88.3	5.0
Anxiety	100.0	21.7
Stress	76.7	0.0

Table II. Different dimensions of FIQR in fibromyalgia patients and control groups.

FIQR Dimensions	FM group (n=60) Mean ± SD	Control group (n=60) Mean ± SD
Functions	16.6 ± 4.8	1.3 ± 0.8
Pain	12.6 ± 3.3	1.4 ± 1.1
Symptoms	29.7 ± 7.3	3.8 ± 2.3
FIQR	58.9 ± 14.4	6.6 ± 3.4

Table III. Occurrence of depression, anxiety and stress in fibromyalgia patients and control groups.

DASS21 Dimensions	FM group (n=60) Mean ± SD	Control group (n=60) Mean ± SD
Depression	16.3 ± 6.8	3.0 ± 2.6
Anxiety	18.2 ± 5.6	4.5 ± 3.3
Stress	19.9 ± 6.3	5.8 ± 3.1
DASS	54.4 ± 16.4	13.4 ± 6.0

Table IV. Coefficient of correlations (r) between dimensions of FIQR and DASS (FM group).

	DAS-D	DAS-A	DAS-S	DASS Total
FF	0.34**	0.38**	0.31*	0.39**
FP	0.38**	0.28*	0.27*	0.34**
FS	0.50**	0.41**	0.44**	0.52**
FIQR Total	0.45**	0.40**	0.38**	0.47**

FF: Fibromyalgia Function; FP: Fibromyalgia Pain; FS: Fibromyalgia Symptoms.
* $p < 0.05$, ** $p < 0.01$.

Table V. Regression model between FIQR and various negative affects.

Negative affects	Regression coefficient	p-value
FIQR and depression	0.963	$p < 0.001$
FIQR and anxiety	1.029	$p = 0.002$
FIQR and stress	0.858	$p = 0.003$

healthy people were included in this study as control group. The sample was drawn from an old residential area of Lucknow city, where most of the population belongs to middle socio-economic status. The mean age of the study population was 40.4 years (20yrs–60yrs). There were 56 females and 4 males. The duration of illness varied from 3 months to 180 months with an average of 47.8 months. The number of tender points ranged from 11 to 18 (mean 14.9).

The mean age of the control group was 36 years (22yrs–55yrs). The control group comprised of 49 females and 11 males. The demographic data pertaining to the study population were also collected. People of both fibromyalgia patients group and control group were interviewed individually. Fibromyalgia Impact Questionnaire Revised (FIQR) and Depression Anxiety and Stress scale (DASS 21) were administered to both groups. None of the patients or controls gave a history

of major trauma or major psychiatric disorder in the past.

Results

Depression, anxiety and stress were found in 88.3%, 100% and 76.7% of FMS patients, respectively (Table I). Of these, 13.3%, 40% and 3.3% of FMS patients exhibited extremely severe levels, respectively. However 11.6% of the patients with fibromyalgia were found without any complaint of depression and 21.6% were found without stress. In the control group, only mild depression was found in 5% of the subjects. Mild to moderate anxiety was reported in 21.6% of the subjects.

Fibromyalgia patients had significantly greater suffering from FIQR domain of ‘pain’, ‘symptoms’, and ‘functional impairment’ as compared to controls ($p < 0.001$) (Table II), and greater depression, anxiety, stress and overall DASS21 scores (Table III). Severity of depression was moderately correlated with FIQR pain, function and symptoms with Pearson correlation coefficient (r) ranging from 0.27 to 0.52 (Table IV). A mathematical relationship between FIQR and DASS was found by simple linear regression (Table V). All these relations were found to be statistically significant.

Discussion

Symptoms suggestive of FMS may also be found in some normal subjects who cannot, however, be classified as having FMS by the American College of Rheumatology criteria of 1990. The percentage of such patients is small. However, in these subjects depression is related to all three domains of FIQR, namely symptoms, function and pain. In patients with fibromyalgia syndrome all three negative affects – depression, anxiety and stress – were found to be present in a significant number of patients. Other studies have shown similar results. Anxiety and depression are independently associated with pain and symptoms in fibromyalgia. Martinez *et al.* 1995 (13) found depression in 80% of FMS patients and 12% of the control patients ($p < 0.05$), and anxiety in 63.8% of the patients and 16.0% of the controls ($p < 0.05$). Major depression as

well as increased rates of depression and somatisation is also commonly found in fibromyalgia (14). Weir *et al.* (2006) (15) reported that patients with fibromyalgia were 2 to 7 times more likely to have one or more of the following co-morbid conditions: depression, anxiety, headache, irritable bowel syndrome, chronic fatigue syndrome, systemic lupus erythematosus and rheumatoid arthritis.

The present study showed that stress is also associated with FMS. Houdenhove and Luyten (2006) (11) discussed the precipitating predisposing and perpetuating role of physical and psychological stressors in FM. Onset of FM is frequently associated with various types of negative life events (16, 17). Evidence of the frequent co-occurrence of post-traumatic stress disorder (PTSD) and FM is increasing in adult patients (18, 19). Some authors believe that depression might be a mediating factor (20). Available evidence suggests that in FMS the stress response system – notably the hypothalamic pituitary-adrenal (HPA) axis and the sympathetic nervous system – is dysregulated (21-23).

This study looked into the severity of depression, anxiety and stress and the severity of abnormality of various FIQR domains. The study, however, did not look into the various types of depression or the causes of stress. It is otherwise known that FMS may be associated with maniac depression (24), spasmophilia (25), post-traumatic stress disorder (26), personally relevant daily hassles (27), etc. Significant correlations were found in this study between FM worsening and worsening degree of anxiety, depression and stress. It would be difficult to say whether depression gives rise to symptoms of FMS or, *vice versa*, the presence of FMS leads to depression. However, this study provides

a good rationale for the treatment of FM with antidepressants, since the severity of depression correlates with the severity of FMS.

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