

Prevalence of personality disorders in patients with fibromyalgia: a brief review

Luigi Attademo¹ and Francesco Bernardini²

¹USC Psychiatry 1, Department of Mental Health, Azienda Socio-Sanitaria Territoriale (ASST) “Papa Giovanni XXIII”, Bergamo, Italy

²Department of Psychiatry, Erasme Hospital, Université Libre de Bruxelles (ULB), Anderlecht, Belgium

Fibromyalgia (FM) is a complex musculoskeletal pain disorder characterized by widespread pain, fatigue, and other functional symptoms. Patients with FM are frequently affected by psychiatric disorders. Clinicians typically observe certain personality characteristics or traits associated with FM, but there is still a lack of studies about personality disorders (PDs) in patients with FM. Aim of our brief review is to summarize the literature to date on prevalence of PDs in FM. We searched the PubMed electronic database for all articles up to 1 February 2017, and identified a number of reports about prevalence of PDs in patients with FM. Most of studies show that the proportion of PDs diagnosed in patients with FM appears far greater than that found in the general population. We suggest that is very useful to evaluate PDs in patients with FM systematically, in order to improve the understanding, assessment, and treatment of this clinical condition.

Key words: brief review; fibromyalgia; personality disorders

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Introduction

Fibromyalgia (FM) is a common and complex musculoskeletal pain disorder, characterized by long-lasting widespread pain and abnormal tenderness, associated with variable stiffness, fatigue, poor quality of sleep, cognitive disturbances, and psychological distress (Wolfe *et al.*, 1990; Mease *et al.*, 2009). A recent review by Queiroz (2013) found that the global mean prevalence of FM in the general population was 2.7%, and that the mean rate was 3.1% in the Americas, 2.5% in Europe, and 1.7% in Asia. The 1990 diagnostic criteria proposed by the American College of Rheumatology estimate a female to male ratio of 7:1 (Clauw, 2014). The diagnostic criteria are still a matter of debate, and FM continues to be particularly difficult to diagnose and treat (Rose *et al.*, 2009).

Clinicians should be familiar with the signs and symptoms of FM and know that there are certain conditions associated with FM (Jahan *et al.*, 2012). For example, a substantial lifetime psychiatric comorbidity in patients with FM has been found, suggesting that FM might share underlying pathophysiologic associations with some psychiatric disorders (Arnold *et al.*, 2006). Psychological, behavioural, and social issues have been shown to affect the pathogenesis of FM and complicate its treatment (Fu *et al.*, 2015). Comorbid psychiatric disorders include major depressive disorder, generalized anxiety disorder, obsessive-compulsive disorder, and post-traumatic stress disorder (Clauw, 2014). In our opinion, personality disorders (PDs) are frequently comorbid with FM too. But, although clinicians typically recognize certain personality characteristics or traits that can be associated with FM (Malin and Littlejohn, 2012), and patients with FM have been described as perfectionist (Herken *et al.*, 2001), introspective, demanding (Amir *et al.*, 2000), and occasionally exhausting to manage (Asbring and Närvänen, 2003), there is still a clear lack of studies about PDs in patients with FM.

Correspondence to: Luigi Attademo. USC Psychiatry 1, Department of Mental Health, Azienda Socio-Sanitaria Territoriale (ASST) “Papa Giovanni XXIII”, Piazza OMS 1, 24127 Bergamo, Italy. Email: luigi.attademo@hotmail.it

The aim of our review article is to narratively summarize the literature to date on PDs in FM and give recommendations for future research directions in order to better understand the role of PDs in the pathogenesis and impact of FM and to improve the management and treatment of this complex, highly impacting disorder. We think that PDs and FM are strictly associated with each other, and that this comorbidity has to be promptly identified during the consultation practice, in order to offer the patients a more holistic health care in this area.

Methods

We searched the PubMed electronic database for all articles up to 1 February 2017, and no initial date was used. Search terms included ‘fibromyalgia’ combined with ‘axis II’ or ‘personality disorder’ or ‘personality disorders’ or ‘personality disordered’. The search included all languages. In total, 37 articles were identified. We selected seven original research reports related to the prevalence of PDs in patients with FM (Martinez *et al.*, 1995; Thieme *et al.*, 2004; Rose *et al.*, 2009; Uguz *et al.*, 2010; Garcia-Fontanals *et al.*, 2014; Gumà-Uriel *et al.*, 2016; Kayhan *et al.*, 2016). We excluded 30 articles, on the basis of the following exclusion criteria: (a) studies unrelated to the topic and (b) letters or general comment papers not reporting research findings. Conference abstracts, doctoral dissertations, and grey literature were not eligible based on reporting PD prevalence. Reference lists were hand searched for missing papers, but hand searching identified no further reports. Three additional original research reports were included in this review instead, based on our knowledge of the subject (Cerón Muñoz *et al.*, 2010; Pando Fernández, 2011; Fu *et al.*, 2015).

Results and discussion

We identified 10 reports of prevalence of PDs in patients with FM (Martinez *et al.*, 1995; Thieme *et al.*, 2004; Rose *et al.*, 2009; Cerón Muñoz *et al.*, 2010; Uguz *et al.*, 2010; Pando Fernández, 2011; Garcia-Fontanals *et al.*, 2014; Fu *et al.*, 2015; Gumà-Uriel *et al.*, 2016; Kayhan *et al.*, 2016). Among them, six studies were performed in outpatient

rheumatology settings (Martinez *et al.*, 1995; Thieme *et al.*, 2004; Uguz *et al.*, 2010; Pando Fernández, 2011; Garcia-Fontanals *et al.*, 2014; Fu *et al.*, 2015), two studies in a primary health care setting (Cerón Muñoz *et al.*, 2010; Gumà-Uriel *et al.*, 2016), one study in an outpatient physical therapy service (Kayhan *et al.*, 2016), and one study in a consultation-liaison psychiatry setting (Rose *et al.*, 2009). Four articles focused on samples of only female patients with FM (Martinez *et al.*, 1995; Thieme *et al.*, 2004; Garcia-Fontanals *et al.*, 2014; Kayhan *et al.*, 2016). A categorical classification system was used for the diagnosis of PDs in eight studies (Thieme *et al.*, 2004; Rose *et al.*, 2009; Cerón Muñoz *et al.*, 2010; Uguz *et al.*, 2010; Pando Fernández, 2011; Fu *et al.*, 2015; Gumà-Uriel *et al.*, 2016; Kayhan *et al.*, 2016). The most used PDs categorical assessment instrument was the Structured Clinical Interview for DSM-III-R (Spitzer *et al.*, 1990) and for DSM-IV (First *et al.*, 1996) ($n=4$), followed by the ICD-10 International Personality Disorder Examination (Loranger, 1999) ($n=3$). One study used the Personality Diagnostic Questionnaire-4 (Abdin *et al.*, 2011). As for PDs dimensional assessment, one study used the Temperament and Character Inventory-Revised (Cloninger, 1999), and one study the Kurt Schneider’s (1959) method for the diagnosis of PDs.

Table 1 summarizes the results from the 10 reviewed articles, in descending chronological order. Obsessive-compulsive PD was found to be the most common in three samples (Rose *et al.*, 2009; Uguz *et al.*, 2010; Pando Fernández, 2011), Avoidant PD was the most common in two samples (Fu *et al.*, 2015; Gumà-Uriel *et al.*, 2016), Histrionic PD was the most common in two samples (Cerón Muñoz *et al.*, 2010; Kayhan *et al.*, 2016), and Borderline PD was the most common in one sample (Thieme *et al.*, 2004). Two studies did not report the prevalence of specific PDs (Martinez *et al.*, 1995; Garcia-Fontanals *et al.*, 2014). Most of studies highlight that the most prevalent PDs diagnosed in patients with FM are those belonging to Cluster C disorders (Rose *et al.*, 2009; Uguz *et al.*, 2010; Pando Fernández, 2011; Garcia-Fontanals *et al.*, 2014; Fu *et al.*, 2015; Gumà-Uriel *et al.*, 2016) in the Diagnostic and Statistical Manual of Mental Disorders. Cluster C include three PDs sharing anxious and fearful features (avoidant, dependent, and obsessive-compulsive) (Sadock *et al.*, 2014).

Table 1 Main findings from studies of prevalence of personality disorders in patients with fibromyalgia

Authors and year	Study characteristics	Personality disorders assessment instruments	Main findings
Kayhan <i>et al.</i> (2016)	A case-control study involved 96 female FM patients admitted to the outpatient Physical Therapy Unit of Mevlana University School of Medicine, Turkey, and 94 healthy women	Structured Clinical Interview for DSM-III-R Personality Disorders (SCID-II)	Of the 96 patients, 13 (13.5%) had a PD. The histrionic was the most common (10.4%) and was the only PD significantly more prevalent in the patient group than in the control group
Gumà-Uriel <i>et al.</i> (2016)	A cross-sectional study was performed using the baseline data of 216 FM patients (aged 18–75 years) participating in a randomized, controlled trial carried out in three primary health care centres situated in Barcelona, Spain	DSM-IV version of the International Personality Disorder Examination – Screening Questionnaire (IPDE-SQ)	Of the 216 participants in the study, 157 (72.7%) completed the IPDE-SQ and of these, 102 (65.0%) had a possible PD. The most prevalent PDs in the sample were: avoidant (41.4%), obsessive-compulsive (33.1%), borderline (27.0%), and schizoid (15.3%)
Fu <i>et al.</i> (2015)	The study sample consisted of 48 FM patients recruited by mailing, or handing out surveys in an outpatient rheumatology office in Syracuse, NY, USA	Personality Diagnostic Questionnaire-4 (PDQ-4)	27 (56.3%) patients had a PD. Avoidant (27.1%) was the most common, followed by depressive (25.0%), paranoid (22.9%), and obsessive-compulsive (20.8%)
García-Fontanals <i>et al.</i> (2014)	From an initial sample of 150 FM patients at the Rheumatology Department, Hospital CIMA Sanitas, Barcelona, Spain, the final sample consisted of 42 female FM patients (aged 32–63 yrs) and 38 healthy controls	Temperament and Character Inventory-Revised (TCI-R)	A total of 36.0% of FM patients presented a possible psychometric diagnosis of PD, mainly from Cluster C (26.0%, $n=11$), although there were no significant differences from the control group
Pando Fernández <i>et al.</i> (2011)	An observational, descriptive, cross-sectional study involved 30 FM patients (aged 29–63 years) selected by the service of rheumatology of the Hospital General of Ciudad Real, Spain	ICD-10 International Personality Disorder Examination (IPDE)	28 (93.3%) patients had a PD. Obsessive-compulsive (anankastic) (33.3%) was the most common, followed by avoidant (30.0%), schizoid (13.3%), and dependent (10.0%)
Uguz <i>et al.</i> (2010)	The study included 128 consecutive FM patients who admitted to rheumatology outpatient clinic of a university hospital in Konya, Turkey. The final sample included 103 FM patients and 83 control subjects	Structured Clinical Interview for DSM-III-R Personality Disorders (SCID-II)	Any PD (31.1% versus 13.3%), obsessive-compulsive (23.3% versus 3.6%), avoidant (10.7% versus 2.4%), and passive-aggressive (10.7% versus 2.4%) PDs were significantly more common in the patient group compared to the control group
Cerón Muñoz <i>et al.</i> (2010)	A cross-sectional descriptive study in an urban Primary Care centre in Barcelona, Spain, was performed selecting 132 FM patients (aged ≥ 18 years)	ICD-10 International Personality Disorder Examination (IPDE)	Of the 132 participants in the study, 121 (91.7%) completed the IPDE that was positive in 96.7% of the sample. The more frequent PDs were: histrionic (71.9%), obsessive-compulsive (71.1%), borderline (emotionally unstable) (66.1%), and avoidant (61.9%)
Rose <i>et al.</i> (2009)	30 FM outpatients were examined consecutively by the consultation-liaison psychiatric service of the Centre Hospitalier Régional Universitaire and of the Saint-Philibert Hospital in Lille, France	Structured Clinical Interview for DSM-IV Personality Disorders (SCID-II)	46.7% received at least one diagnosis of PD, including obsessive-compulsive (30.0%), borderline (16.7%), depressive (16.7%), and avoidant (13.3%)
Thieme <i>et al.</i> (2004)	115 female FM patients (aged 21–68 years) were recruited from rheumatologic outpatient departments as well as from a Hospital for Rheumatic Disorders at Berlin-Buch, Germany	Structured Clinical Interview for DSM-IV Personality Disorders (SCID-II)	PDs were found to be present in 8.7% of patients, 5.25% borderline, and 1.75% revealing either an avoidant or dependent PD
Martinez <i>et al.</i> (1995)	47 female FM patients (aged 21–65 years) and 25 random selected control patients were studied at the General Medical and Rheumatology Out-patient Clinic of the Conjunto Hospitalar de Sorocaba, Brazil	Schneider's method for the diagnosis of personality disorders	63.8% of the FM patients and 8.0% of the control group had a PD, respectively, and the comparison was statistically significant

FM = fibromyalgia; PD = personality disorder.

Studies conducted on large representative samples of community populations found prevalences of PDs between 13.4 and 14.8% (Torgersen *et al.*, 2001; Grant *et al.*, 2004); a more recent review by Samuels (2011) found that the prevalence of PDs in the general population was between 6 and 13%. Differently, our review shows that the prevalence of PDs in patients with FM ranged from 8.7 to 96.7%, so we can say that the proportion of PDs diagnosed in patients with FM appears far greater than that found in the general population. For example, in our review, the largest sample study included the data from 157 patients with FM participating in a randomized, controlled trial, and showed that 65.0% of the sample had a possible PD (Gumà-Uriel *et al.*, 2016).

PDs appear to be frequent comorbid disorders in patients with FM. Moreover, it has been demonstrated that patients with FM and comorbid-PD have worse functional status and higher direct costs, especially in terms of visits to primary health care and specialists (Gumà-Uriel *et al.*, 2016). Reviewed studies underline a possible link between FM and PDs, but this link has to be further investigated along with neurobiological research to better understand the FM etiopathogenetic mechanisms. What we know so far about FM is that genetics plays a role in the development of the FM as well as in the serotonin and noradrenaline system (Bazzichi *et al.*, 2016). Other neuroendocrine transmitters such as substance P, growth hormone, and cortisol seem to be involved too. Sleep alterations, aberrant pain processing, and a disturbed stress-adaptation response are often found in patients with FM. This all suggests a possible major role for autonomic and neurotransmitters abnormalities and for stress response alterations (Jahan *et al.*, 2012). These pathophysiological mechanisms could be shared with PDs, at least in part.

Several limitations deserve mention in this discussion. Surely, a major limitation of this paper is the decision to perform only a narrative review; the total prevalence of PDs was not pooled together where possible, providing 95% CI and heterogeneity estimates, and the estimated pooled prevalence of specific PDs was not performed to gauge the most common subtype of PD in FM. Another limitation is that some of the reviewed studies used non-categorical assessment methods to determine PDs; specifically, two studies were included who utilized the Temperament and Character Inventory-Revised

(Garcia-Fontanals *et al.*, 2014) and Schneider's method (Martinez *et al.*, 1995) for the diagnosis of PDs. A third limitation lies in the fact that only PubMed electronic database was used for searching, suggesting the possibility of some missing papers.

However, despite the limitations, we believe that this narrative review could add useful information to the literature and the journals readership including practicing clinicians. Prompt diagnosis and treatment of FM and of associated conditions may produce substantial improvement in quality of life of affected patients. Due to the high frequency of the association between FM and psychiatric disorders in general, a careful clinical assessment is warranted to identify FM patients who may also benefit from specific psychotropic medications, and from psychotherapeutic and psychosocial interventions. We suggest that it is very useful to systematically evaluate PDs too in patients with FM, in order to improve the understanding, assessment, and treatment of this complex clinical condition. Knowledge of the core features of PDs may help physicians to recognize, diagnose, and treat affected patients, for example suggesting a specialist's consultation. Furthermore, we suggest that PDs should be evaluated using validated assessment instruments and not only on the basis of clinician's judgment, in order to provide a reliable diagnosis. As the symptoms of FM are related to stresses, an optimal treatment needs to be an ongoing process and has to be based on a patient centered approach (Jahan *et al.*, 2012). Patients should participate in developing a care plan, this will help them to focus on positive lifestyle changes limiting anxiety and stress. Therefore, a close multi-modal collaboration among general practitioners and specialists from different fields is essential for successful management of patients with FM.

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Conflicts of Interest

None.

References

- Abdin, E., Koh, K.G., Subramaniam, M., Guo, M.E., Leo, T., Teo, C., Tan, E.E. and Chong, S.A.** 2011: Validity of the Personality diagnostic Questionnaire-4 (PdQ-4+) among mentally ill Prison inmates in Singapore. *Journal of Personality Disorders* 25, 834–41.
- Amir, M., Neumann, L., Bor, O., Shir, Y., Rubinow, A. and Buskila, D.** 2000: Coping styles, anger, social support, and suicide risk of women with fibromyalgia syndrome. *Journal of Musculoskeletal Pain* 8, 7–20.
- Arnold, L.M., Hudson, J.I., Keck, P.E., Auchenbach, M.B., Javaras, K.N. and Hess, E.V.** 2006: Comorbidity of fibromyalgia and psychiatric disorders. *Journal of Clinical Psychiatry* 67, 1219–225.
- Asbring, P. and Närvänen, A.L.** 2003: Ideal versus reality: physicians perspectives on patients with chronic fatigue syndrome (CFS) and fibromyalgia. *Social Science & Medicine* 57, 711–20.
- Bazzichi, L., Giacomelli, C., Consensi, A., Atzeni, F., Batticciotto, A., Di Franco, M., Casale, R. and Sarzi-Puttini, P.** 2016: One year in review 2016: fibromyalgia. *Clinical and Experimental Rheumatology* 34 (Suppl 96), S145–149.
- Cerón Muñoz, A.M., Centelles Mañosa, F., Abellana Sengla, M. and García Capel, S.** 2010: [Fibromyalgia and personality disorders]. *Semergen - Medicina de Familia*. 36, 501–6.
- Clauw, D.J.** 2014: Fibromyalgia: a clinical review. *JAMA* 311, 1547–555.
- Cloninger, C.R.** 1999. *The temperament and character inventory-revised*. St Louis, MO: Center for Psychobiology of Personality, Washington University.
- First, M.B., Spitzer, R.L., Gibbon, M. and Williams, J.B.W.** 1996. *User's guide for the structured clinical interview for DSM-IV personality disorders (SCID-II)*. Washington, DC: American Psychiatric Association, 1–80.
- Fu, T., Gamble, H., Siddiqui, U. and Schwartz, T.** 2015: Psychiatric and personality disorder survey of patients with fibromyalgia. *Annals of Depression and Anxiety* 2, 1064.
- García-Fontanals, A., García-Blanco, S., Portell, M., Pujol, J., Poca-Dias, V., García-Fructuoso, F., López-Ruiz, M., Gutiérrez-Rosado, T., Gomà-i-Freixanet, M. and Deus, J.** 2014: Cloninger's psychobiological model of personality and psychological distress in fibromyalgia. *International Journal of Rheumatic Diseases* 19, 852–63.
- Grant, B.F., Hasin, D.S., Stinson, F.S., Dawson, D.A., Chou, S.P., Ruan, W.J. and Pickering, R.P.** 2004: Prevalence, correlates, and disability of personality disorders in the United States: results from the national epidemiologic survey on alcohol and related conditions. *Journal of Clinical Psychiatry* 65, 948–58.
- Gumà-Uriel, L., Peñarrubia-María, M.T., Cerdà-Lafont, M., Cunillera-Puertolas, O., Almeda-Ortega, J., Fernández-Vergel, R., García-Campayo, J. and Luciano, J.V.** 2016: Impact of IPDE-SQ personality disorders on the healthcare and societal costs of fibromyalgia patients: a cross-sectional study. *BMC Family Practice* 17, 61.
- Herken, H., Gürsoy, S., Yetkin, O.E., Virit, O. and Esgü, K.** 2001: Personality characteristics and depression level of the female patients with fibromyalgia syndrome. *International Medical Journal* 8, 41–44.
- Jahan, F., Nanji, K., Qidwai, W. and Qasim, R.** 2012: Fibromyalgia syndrome: an overview of pathophysiology, diagnosis and management. *Oman Medical Journal* 27, 192–195.
- Kayhan, F., Küçük, A., Satan, Y., İlgün, E., Arslan, Ş. and İlik, F.** 2016: Sexual dysfunction, mood, anxiety, and personality disorders in female patients with fibromyalgia. *Neuropsychiatric Disease and Treatment* 12, 349–55.
- Loranger, A.W.** 1999: International Personality Disorder Examination: IPDE; DSM-IV and ICD-10; Interviews. PAR. Odessa, FL.
- Malin, K. and Littlejohn, G.O.** 2012: Personality and fibromyalgia syndrome. *The Open Rheumatology Journal* 6, 273–285.
- Martinez, J.E., Ferraz, M.B., Fontana, A.M. and Atra, E.** 1995: Psychological aspects of Brazilian women with fibromyalgia. *Journal of Psychosomatic Research* 39, 167–74.
- Mease, P., Arnold, L.M., Choy, E.H., Clauw, D.J., Crofford, L.J., Glass, J.M., Martin, S.A., Morea, J., Simon, L., Strand, C.V. and Williams, D.A., OMERACT Fibromyalgia Working Group** 2009: Fibromyalgia syndrome module at OMERACT 9: domain construct. *The Journal of Rheumatology* 36, 2318–2329.
- Pando Fernández, M.P.** 2011: [Fibromyalgia and psychotherapy]. *Revista Digital de Medicina Psicosomática y Psicoterapia* 1, 1–42.
- Queiroz, L.P.** 2013: Worldwide epidemiology of fibromyalgia. *Current Pain and Headache Reports* 17, 356.
- Rose, S., Cottencin, O., Chouraki, V., Wattier, J.M., Houvenagel, E., Vallet, B. and Goudemand, M.** 2009: [Study on personality and psychiatric disorder in fibromyalgia]. *Presse Medicale*. 38, 695–700.
- Sadock, B.J., Sadock, V.A. and Ruiz, P.** 2014. *Kaplan & Sadock's synopsis of psychiatry: behavioral sciences/clinical psychiatry*, 11th edition. Philadelphia: LWW.
- Samuels, J.** 2011: Personality disorders: epidemiology and public health issues. *International Review of Psychiatry* 23, 223–33.
- Schneider, K.** 1959: *Clinical psychopathology*. Grune & Stratton. New York, NY.
- Spitzer, R.L., Williams, J.B.W., Gibbon, M. and First, M.** 1990. *Manual for the structured clinical interview for DSM-III-R personality disorders*. Washington, DC: American Psychiatric Press, 7.
- Thieme, K., Turk, D.C. and Flor, H.** 2004: Comorbid depression and anxiety in fibromyalgia syndrome: relationship to somatic and psychosocial variables. *Psychosomatic Medicine*. 66, 837–44.
- Torgersen, S., Kringlen, E. and Cramer, V.** 2001: The prevalence of personality disorders in a community sample. *Archives of General Psychiatry* 58, 590–96.

Uguz, F., Çiçek, E., Salli, A., Karahan, A.Y., Albayrak, I., Kaya, N. and Uğurlu, H. 2010: Axis I and Axis II psychiatric disorders in patients with fibromyalgia. *General Hospital Psychiatry* 32, 105–7.

Wolfe, F., Smythe, H.A., Yunus, M.B., Bennett, R.M., Bombardier, C., Goldenberg, D.L., Tugwell, P., Campbell, S.M., Abeles, M., Clark, P., Fam, A.G.,

Farber, S.J., Flechtner, J.J., Franklin, C.M., Gatter, R.A., Hamaty, D., Lessard, J., Lichtbroun, A.S., Masi, A.T., McCain, G.A., Reynolds, W.J., Romano, T.J., Russell, I.J. and Sheon, R.P. 1990: The American College of Rheumatology 1990 criteria for the classification of fibromyalgia. Report of the Multicenter Criteria Committee. *Arthritis and Rheumatism* 33, 160–72.