

# Predicting the impact and severity of Fibromyalgia from maladaptive personality traits



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## Introduction

Given that fibromyalgia (FM) is a chronic condition characterized by high levels of pain and emotional stress (Gálvez-Sánchez et al., 2019), personality assessment becomes particularly relevant. This is because personality significantly influences how individuals cope with psychological stressors and adapt to chronic illnesses (Malin & Littlejohn, 2012). In this context, new perspectives on personality and its disorders support a dimensional approach, aligned with the alternative model of personality pathology proposed in both the DSM-5 (APA, 2013) and the ICD-11 (WHO, 2019). Specifically, the Livesley model has been associated from its inception with other theoretical frameworks of personality, and a convergence between the DSM-5 and ICD-11 models has been identified regarding the four dimensions of the DAPP-BQ, as detailed in Ruiz (2021).

## Objectives

The main objective of this study was to analyze the association between maladaptive personality traits and clinical symptomatology in groups of women diagnosed with Fibromyalgia (FM). We also aimed to explore which maladaptive personality traits predict FM with the highest severity.

## Results

Two subgroups of patients were identified through analysis of a hierarchical cluster using the *FSQ* and *FIQ-R* scales as clustering variables, with squared Euclidean distances included in the proximity matrix. The Ward method was used to form clusters, and standardized data were used in the cluster analysis to minimize bias caused by differences in variable measurement.



**Cluster 1** consisted of 50 patients with moderate scores in severity and impact scales. **Cluster 2** contained the largest number of patients (n=60) and showed a more severe profile with a greater impact. All differences were significant and of high magnitude ( $g > 0.92$ ). As shown in Table 1, the group with the highest severity scores had a higher incidence across all variables. Elevated pain levels and a worse psychological state characterized these patients.

**Table 2. Differences in dysfunctional personality traits between two clusters**

DAPP-BQ Traits	Low Severity M (SD)	High Severity M (SD)	$t_{108}$	$p$	$g$	CI 95%
Submissiveness	53.38 (10.67)	57.77 (10.45)	-2.17	.016	-0.41	-0.79; -0.03
Affective Lability	52.90 (9.52)	62.32 (10.22)	-4.96	<.001	<b>-0.94</b>	-1.33; -0.55
Anxiousness	53.60 (10.59)	62.70 (9.96)	-4.64	<.001	<b>-0.88</b>	-1.27; -0.49
Insecure Attachment	49.96 (10.45)	55.25 (12.69)	-2.36	.010	-0.45	-0.82; -0.07
Cognitive Distortion	56.18 (9.45)	67.98 (13.44)	-5.39	<.001	<b>-0.99</b>	-1.39; -0.60
Identity problems	57.20 (10.71)	68.38 (11.62)	-5.21	<.001	<b>-0.99</b>	-1.38; -0.59
Oppositionality	54.38 (9.26)	61.33 (9.69)	-3.82	<.001	-0.73	-1.11; -0.34
Restr. Em. express.	54.66 (9.73)	58.70 (9.47)	-2.20	.015	-0.42	-0.79; -0.41
Suspiciousness	49.10 (8.92)	55.47 (11.56)	-3.26	<.000	-0.61	-0.98; -0.22
Self-Harm	49.38 (6.00)	69.77 (21.62)	-6.99	<.001	<b>-1.23</b>	-1.63; -0.82

Table 2 shows only the DAPP-BQ dysfunctional personality traits for which significant differences were found between the two groups. Patients with greater FM severity score higher on all of them. The most pronounced differences ( $g > 0.8$ ) were observed in *Affective Lability*, *Anxiousness*, *Cognitive distortions*, *Identity problems*, and *Self-Harm*.

## Conclusions

The existence of subgroups of patients with FM based on their severity and clinical impact, with personality differences, is confirmed.

- The greater severity of FM is associated with a pathological personality profile characterized by *emotional instability*, *distorted thinking*, *interpersonal and emotional regulation difficulties*, as well as a marked tendency toward *self-harm*. Those patients with distorted automatic thoughts (*Cognitive Distortion*) and a marked tendency toward self-destructive behavior (*Self-Harm*) are at greater risk of suffering from more disabling FM.
- Because these specific maladaptive personality traits are sensitive to the clinical severity of FM, taking them into account could be useful for both the assessment and treatment planning of its psychosomatic manifestations.

## Method

A total of **110 women** (mean age:  $55.8 \pm 8.9$  years) diagnosed with FM completed the following clinical instruments: *FSQ* (FM severity), *FIQ-R* (FM Impact), *MPQ-SV* (Pain), *PASS-20* (Anxiety), *BDI-II* (Depression), *PSS* (Stress), *STAXI-2* (Anger) and *DAPP-BQ* (Dimensional Personality Pathology). A hierarchical cluster analysis was conducted, using the severity and impact of FM as classification variables. The means between the two groups were compared and the magnitude of the differences was calculated using *Hedges' g*. The predictive efficacy of personality traits was tested with logistic regression analysis.

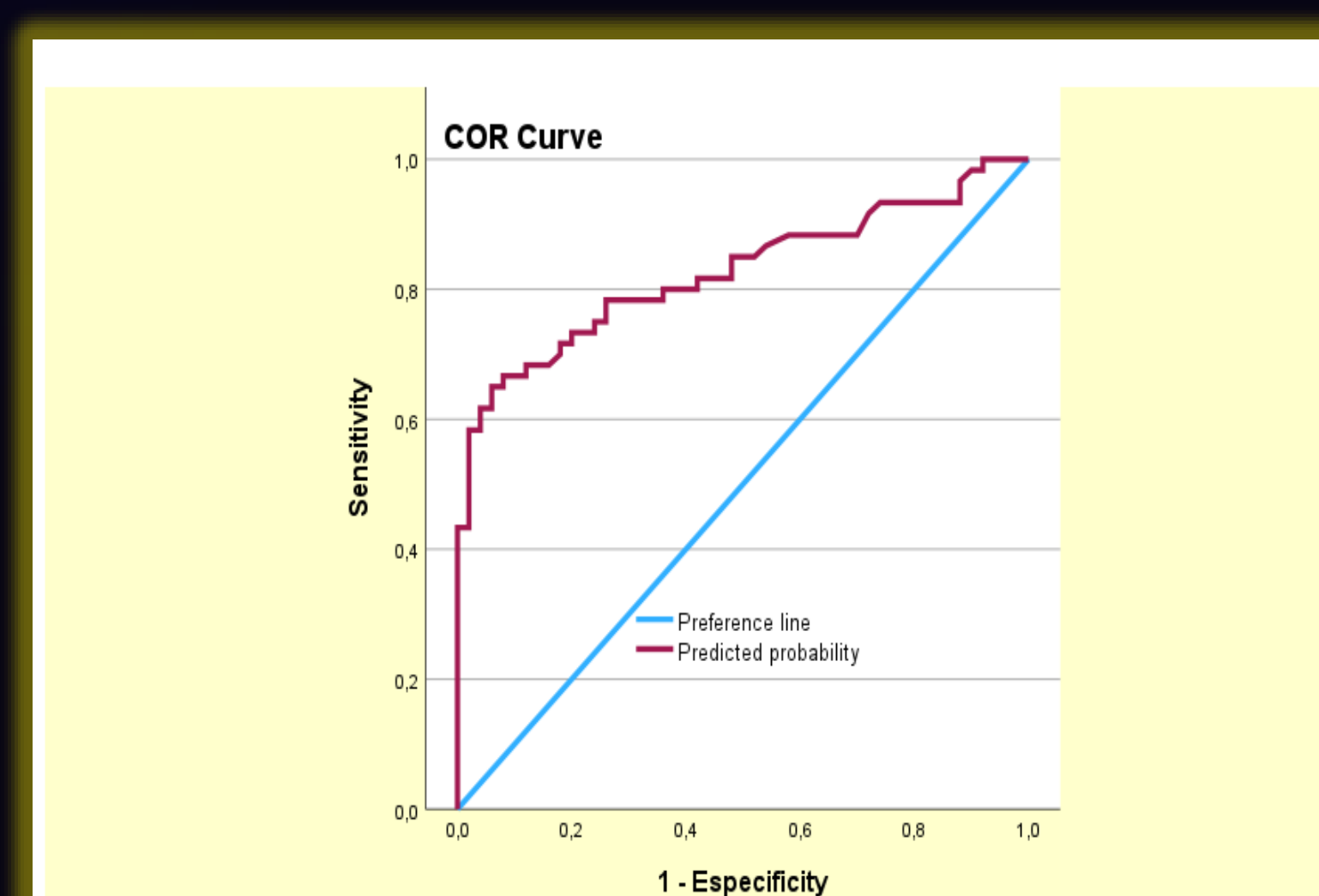
**Table 1. Differences in pain and Clinical symptoms between two clusters**

Measures	Low Severity M (SD)	High Severity M (SD)	$t_{108}$	$p$	$g$	CI 95%
MPQ-SV Total Pain	37.94 (8.59)	43.64 (8.50)	-3.45	<.001	-0.66	-1.04; -2.72
MPQ-SV Pain intensity	2.80 (0.83)	3.62 (0.92)	-4.83	<.001	<b>-0.92</b>	-1.31; -0.52
MPQ-SV VAS	6.88 (0.98)	7.97 (1.15)	-5.27	<.001	<b>-1.00</b>	-1.40; -0.60
PSS	31.50 (6.66)	34.27 (5.62)	-2.36	.010	-0.45	-0.83; -0.07
PASS-20	45.50 (17.27)	66.38 (16.57)	-6.45	<.001	<b>-1.23</b>	-1.63; -0.82
BDI-II	18.96 (9.19)	33.10 (10.37)	-7.49	<.001	<b>-1.43</b>	-1.84; -1.00
STAXI State	20.08 (6.48)	25.33 (9.51)	-3.43	<.001	-0.63	-1.01; -0.25
STAXI Trait	18.52 (5.39)	22.80 (6.83)	-3.67	<.001	-0.68	-1.07; -0.29
STAXI Expression	22.88 (5.36)	26.45 (5.81)	-3.32	<.001	-0.63	-1.01; -0.25
STAXI Control	34.46 (7.10)	30.07 (8.01)	3.01	.002	0.57	0.19; 0.95
STAXI Anger Expression Index	25.46 (11.04)	32.83 (12.69)	-3.22	<.001	-0.61	-0.99; -0.23

To analyze the association between dysfunctional personality traits and the severity of FM, we performed a forward stepwise logistic regression analysis using the Wald statistic and introducing as predictors only those traits in which the magnitude of the difference was high ( $g > 0.8$ ). Having “*Cognitive distortions*” or “*Self-harming*” tendencies increases the likelihood of developing more severe FM by 6% and 9%, respectively (see Table 3).

**Table 3. Logistic regression predicting likelihood of severe FM**

Predictor variables	$\beta$	SE	Wald	$gl$	$p$	OR	CI 95%
Cognitive Distortion	0.057	0.024	5.570	1	.018	1.059	1.010 – 1.110
Self-Harm	0.086	0.023	13.767	1	.000	1.089	1.041 – 1.140



The model was statistically significant ( $\chi^2 = 47.34$ ,  $p < .001$ ). The Hosmer-Lemeshow test results were:  $\chi^2 = 6.07$ ,  $p = .64$ . The model explained 47% (Nagelkerke  $R^2$ ) of the variance and correctly classified 76.4% of the cases with a specificity of 80% and a sensitivity of 73.3%. Area under the ROC curve (AUC) = .826,  $p < .001$

The AUC CI 95% was 0.75 – 0.90. These data allow us to affirm that the model with these two dysfunctional personality traits (*Cognitive Distortion* and *Self-Harm*) is able to distinguish 82.6% of patients with severe FM.





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