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Assessing the Personality Profile of Patients with Fibromyalgia Syndrome: A Rorschach Study

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Abstract

Background: The role that psychological factors and personality traits play in the pathogenesis of Fibromyalgia Syndrome (FMS) is currently controversial. Most of the studies on FMS used self-report measures, and to date only a doctoral dissertation was conducted to compare the Rorschach responses of patients with FMS to the normative sample.

Aim and Method: By using the Rorschach Performance Assessment System (R-PAS), we compared the scores of 35 women with FMS with those of 35 women with rheumatoid arthritis (RA). R-PAS is a performance-based task able to provide information on psychological processes occurring in the context outside and beyond the test. Furthermore, we chose RA patients as a contrast group because they both share the same medical picture in terms of pain experiences.

Results: Compared to the RA group, the FMS group seemed to experience considerable implicit distress (YTVC') associated with a sense of helplessness and despair (Y) that interferes with coping and adaptive mechanisms. Moreover, we found that these patients showed a cognitive processing focused mostly on the straightforward components of the environment (SI and Sy), but the interpretation of the environment was more unconventional (FQo%). Finally, we observed that almost half of the FMS group exhibited an excessive worry on the body (An).

Conclusions: Our study has two implications for practicing psychologists. First, by using a performance-based test such as the R-PAS, we were able to provide a different clinical picture than self-reports (e.g., we did not find alexithymia features in the FMS protocols) and to identify the problematic features even at different levels of Complexity. Second, the increased levels of implicit stress found in the FMS group require psychological interventions focused on empowering these patients with self-management, active coping strategies when dealing with stressors and pain, so to defy their sense of helplessness.

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Fibromyalgia syndrome (FMS); Rorschach Performance Assessment System (R-PAS); Rheumatoid Arthritis (RA).

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1. Introduction

Fibromyalgia syndrome (FMS) is a chronic disease characterized by a widespread musculoskeletal pain associated with a set of symptoms including fatigue, joint stiffness, sleep

and mood disorders, somatic and cognitive symptoms (Ablin et al., 2012; Wolfe et al., 2016). This syndrome is commonly more prevalent among women, affecting the adult female population ranging between 2.4% and 6.8% (Marques et al., 2017). Given the absence of clinical biomarkers, fibromyalgia is diagnosed exclusively on the basis of symptoms as referred by patients (Wolfe et al., 1990, 2010, 2016). The American College of Rheumatology (ACR) published in 2010 an updated version of the diagnostic criteria of fibromyalgia (Wolfe et al., 2010) in which the presence of tender points as criterion was replaced by the Widespread Pain Index (WPI) and the Symptoms Severity (SS) questionnaire (Wolfe et al., 2014).

Psychological disorders are frequent in fibromyalgia, but at present, it is not possible to determine whether these are a primary cause of fibromyalgia or they represent a reaction to the debilitating symptoms of this disease (Jackson et al., 2006). Overall, several studies reported the comorbidity of fibromyalgia with some psychological conditions, such as drug abuse (e.g., Boisset-Pioro et al., 1995), fatigue (Eisenstat, 1997), hypochondriasis, pain proneness (Wolfe & Hawley, 1999), panic disorder (Epstein et al., 1999), perfectionism (e.g., Mcallister, 2000), pessimism (e.g., Anderberg et al., 1999), somatic preoccupation (e.g., Krag et al., 1995), and abnormal illness behaviour (Ghiggia et al., 2017), Post Traumatic Stress Disorder (Cohen et al., 2002). Some authors hypothesized that fibromyalgia may represent a somatic physical expression of psychological discomforts associated with childhood or adult trauma or physical/psychological victimization (Arroita et al., 2009; Häuser et al., 2011; Paras et al., 2009; Walker et al., 1997). Indeed, patients with fibromyalgia tend to report a greater number of stressful life events than controls (Stisi et al., 2008) and to perceive even minor events as serious and stressful, increasing the stress related to one's state of health (Jensen et al., 2010). In addition, low levels of perceived support may enhance the experience of social conflict among those with FMS, leaving them with limited resources to cope with pain and other stressors (Davis et al., 2001). Finally, patients with FMS seem to be characterized by the presence of low self-esteem, immature defense mechanisms, and a lack of emotional openness that may lead to compensatory or avoidant lifestyles (Van Houdenhove & Eagle, 2004). Nonetheless, the role that psychological factors play in the pathogenesis of fibromyalgia is currently controversial.

Several studies reported that patients with FMS present alexithymia contributing to a tendency to interpret the emotional arousal as symptoms of physical illness (Aaron et al., 2019; Celikel & Saatcioglu, 2006; Di Tella et al., 2018; Huber et al., 2009; Taskin et al., 2007; Tesio et al., 2018). Differently, others found only a weak relationship between FMS and alexithymia, frequently mediated by negative emotions (Aaron et al., 2019; Di Tella & Castelli, 2016; Di Tella et al., 2017; Steinweg et al., 2011). It should be stressed that alexithymia has been re-conceptualized as a form of emotional dysregulation: Taylor (2000), for example, highlighted the role of cognitive and relational deficits in processing and regulating emotions. Moreover, people with alexithymia try to avoid unpleasant feelings by controlling their emotions massively and

restricting the *full* emotional experience; as such, alexithymia may be intended as an extreme and rigid control of the emotional sphere and not exclusively as related to the inability in recognizing of and communicating one's emotions (e.g., Donges, 2014).

Finally, it is not clear whether fibromyalgia may be characterized by personality features, which may contribute to the onset and long-term maintenance of the syndrome (Conversano et al., 2018). Although the Rorschach test could provide useful insights on this topic, to date only a doctoral dissertation was conducted to compare the Rorschach (Comprehensive System [CS]; Exner, 1993) responses of patients with FMS to the normative sample (Lieb, 2008). The findings suggested that the group of patients with FMS deviated from the CS norms on variables such as depression (Depression Index; DEPI) and coping (Coping Deficit Index, CDI). Furthermore, fibromyalgia respondents reported higher scores on the Form Quality Minus (FQ-), Percentage of responses with minus form quality (X-%), and Percentage of responses form with unusual form quality (Xu%), suggesting that they may have a tendency to indirectly and unrealistically address feelings by dealing with a production of misperception and distortions of the world around them.

Overall, given that the relationship between fibromyalgia and personality traits is still unclear (Conversano et al., 2018), the aim of the current study was to investigate whether fibromyalgia may be characterized by personality features. By using the Rorschach Performance Assessment System (R-PAS; Meyer et al., 2011), we compared patients with FMS with patients with rheumatoid arthritis (RA). We chose RA patients as a contrast group because they both share the same medical picture in terms of pain experiences. Fibromyalgia pain can involve the joints and muscles, but it does not damage joints the way that arthritis can; differently from FMS, RA is a chronic autoimmune inflammatory syndrome, characterized by synovial inflammation and hyperplasia ("swelling"), autoantibody production cartilage and bone destruction ("deformity"), and other problems such as cardiovascular, pulmonary, psychological, and skeletal disorders (e.g., Pignatti, 2003). Therefore, while both conditions have similar symptoms, the causes of each symptom, as well as the way patients with each condition experience and cope with them, can be different. By using the Rorschach, the understanding of personality aspects influencing the experience of discomfort in FMS (a syndrome with no *objective* physical/immune inflammation) represents, therefore, the main goal of this work.

1.1 Our hypotheses

Compared to RA patients, we expected to find in patients with FMS: a) emotional dysregulation associated to those alexithymia components related to an excessive control of emotions in order to avoid experiencing them and getting involved; b) impaired coping abilities and stress management that may contribute to the long-term maintenance of fibromyalgia and, therefore, to the maintenance of the chronic pain; c) (possible) excessive worries on the body that may be linked to prolonged sensations (and expressions) of the chronic pain.

2. Method

2.1 Participants

Thirty-five women with FMS ranging in age from 19 to 68 years (M = 50.8; SD = 8.6) and 35 women with RA ranging in age from 24 to 70 years (M = 56.7; SD = 9.9) were recruited from the Fibromyalgia outpatient clinic and the Rheumatology Unit at the "A.O.U. Città della Salute e della Scienza – presidio Molinette" Hospital of Turin (Italy). Patients were included in the current study after the medical and/or psychiatric assessment. Subsequently, appointments were made with recruited patients at the Fibromyalgia outpatient clinic of the same hospital, during which they were administered the Rorschach test. The inclusion criteria were the following: diagnosis of RA or FMS, without any concomitant sign or symptom indicating the presence of any other chronic pain condition; age ranged from 18 to 70 years; adequate knowledge of the Italian language; at least 5 years of education level; no severe psychiatric diagnosis; no experiencing pain due to traumatic injury or structural/regional rheumatic disease; no previous Rorschach administration. Patients with FMS were administered the Rorschach test after the diagnosis of fibromyalgia had been made, during subsequent, follow-up appointments. Patients with RA were recruited among the RA patients attending the Rheumatology Unit for follow-up appointments: if patients met the inclusion criteria, they were asked to participate to the study and to set a date to take the Rorschach test. Participants gave their written informed consent to participate in this study, which was approved by the "A.O.U. Città della Salute e della Scienza – A.O. Ordine Mauriziano of Turin – A.S.L. TO1 Ethic Committee".

2.2 Measures

2.2.1 Rorschach performance assessment system (R-PAS)

For this study, the Rorschach was administered according to the Rorschach Performance Assessment System (R-PAS; Meyer et al., 2011), a relatively new psychometrically sound, evidence-based Rorschach method developed to overcome most of the limits of previous methods. R-PAS has proved hitherto to be a reliable (Kivisalu et al., 2016, 2017; Pignolo et al., 2017; Viglione et al., 2012) and valid (e.g., Andò et al., 2015; Giromini et al., 2016; Mihura et al., 2013; Su et al., 2015) method to administer, code, and interpret the Rorschach. Overall, R-PAS is a performance-based task able to provide information on psychological processes that can occur in the context outside and beyond the test, and that can be found simultaneously in the micro-cosmos of the test (Meyer et al., 2011).

R-PAS consists of five interpretative domains: Administration Behaviors & Observations (assessing basic task-relevant behaviors), Engagement & Cognitive Processing (relating to the individual's productivity, psychological resources, motivation, and engagement in the test process), Perception & Thinking Problems (representing problems in thinking, judgment, or perception), Stress & Distress (measuring stress and distress in various form), and Self & Other

Representation (relating to ways of understanding self, others, and relationships as a foundation of interpersonal relatedness) domains. Moreover, R-PAS variables are divided into Page 1 and Page 2 variables, so that variables included in Page 1 have strong empirical support, whereas variables in Page 2 require further investigation. As such, R-PAS Manual presents two different set of cut-offs for the clinical interpretation of R-PAS standard scores (SSs) based on the empirical support of the variable under examination: Page 1 variables are considered clinically relevant when their scores are at or below 90 SS or when they are at or above 110 SS; conversely, Page 2 variables are considered clinically relevant when their scores are at or below 85 SS or when they are at or above 115 SS.

Another advantage in using R-PAS relies on the possibility to interpret the variable Complexity and to compute Complexity-Adjusted Standard Scores (Cplx. Adj. SS). Complexity is the Rorschach 1st factor and provides information about the general level of integration, differentiation, and productivity in a Rorschach protocol (Meyer et al., 2011). Given that many Rorschach variables correlated with the Complexity score, the R-PAS authors developed the Complexity Adjusted Scores by predicting "the 50th percentile (i.e., the median) for each R-PAS variable score from a regression formula using Complexity as the predictor" (Meyer et al., 2011, p. 303). Accordingly, clinicians should examine Complexity-Adjusted Standard Scores when the examinee's Complexity score is high or low, in order to evaluate how the R-PAS protocol would change if the examinee's level of complexity were at the median.

3. Results

Given that our aim was to compare personality features between the RA and FMS groups through the Rorschach test, we computed a series of independent-sample *t*-tests considering both Standard Scores and Complexity-Adjusted Standard Scores. Before analyzing the data, we evaluated the normality of the scores' distributions. We found that the following variables departed substantially from normality (i.e., skewness > 2 and kurtosis > 7; West et al., 1995): Pull (Pu), Human Movement Minus (M-), Vista (V), reflection (r) expressed in Standard Scores, and M-, V, Color Blended with Shading or Achromatic Color (CBlend), and r expressed in Complexity-Adjusted Standard Scores. As such, for these variables we computed a series of Mann-Whitney *U* tests to compare the scores of the FMS and RA groups. Moreover, we computed Cohen's *d* values as a measure of effect size. Finally, because we tested a number of independent statistical tests, we applied the False Discovery Rate (FDR) controlling procedure (Benjamini & Hochberg, 1995), which is a procedure to control Type I errors, setting alpha at .05. Results referring to Standard Scores are presented in Table 1, whereas the findings on the Complexity-Adjusted Stantard Scores are reported in Table 2.

Table 1. Descriptive statistics of Rorschach Variables (Standard Scores)

	FMS				RA							
	Below (%)	*Above (%)*	*M*	*SD*	*Below (%)*	*Above (%)*	*M*	*SD*	*t*	*df*	*p*	*d*
Page 1												
Administration Behaviors and Observations												
Prompt (Pr)	37	26	101.3	10.6	37	29	101.4	10.6	-0.06	68	.955	-0.01
Pull (Pu)	0	34	104.5	12.4	0	11	99.5	10.7	478.5 [b]	-	.032	0.43
Card Turning (CT)	29	49	108.2	18.0	54	17	95.1	12.5	3.53	60.7 [a]	.001 [d]	0.84
Engagement and Cognitive Processing												
Complexity	37	31	99.7	16.1	46	20	95.0	14.1	1.30	68	.197	0.31
Number of responses (R)	11	46	106.6	11.6	17	23	100.9	10.9	2.10	68	.039	0.50
Form percent (F%)	34	40	100.7	17.4	17	43	102.5	15.5	-0.46	68	.649	-0.11
Blend	29	31	100.2	19.1	46	14	92.7	14.0	1.87	68	.066	0.45
Synthesis (Sy)	29	9	91.9	14.0	37	9	93.8	12.6	-0.58	68	.567	-0.14
Human Movement and Weighted Sum of Color (MC)	34	26	99.0	15.5	43	26	97.8	14.4	0.33	68	.744	0.08
MC to PPD Difference Score (MC-PPD)	40	11	94.9	12.9	17	23	102.1	13.9	-2.27	68	.027	-0.54
Human Movement (M)	20	23	98.2	15.4	17	31	101.1	14.1	-0.83	68	.409	-0.20
Human Movement Proportion (M/MC)	23	26	98.7	15.1	20	43	105.9	17.0	-1.83	64 [c]	.072	-0.45
Color Dominance Proportion [(CF+C)/SumC]	14	11	98.8	14.0	20	9	94.0	13.7	1.17	44 [c]	.248	0.35
Perception and Thinking Problems												
Ego Impairment Index-3 (EII-3)	46	29	97.7	20.2	23	29	98.8	16.3	-0.24	68	.810	-0.06
Thought & Perception Composite (TP-Comp)	37	26	97.9	17.9	31	20	98.1	15.0	-0.04	68	.966	-0.01
Weighted Sum of Cognitive Codes (WSumCog)	34	40	101.8	19.5	31	31	101.3	16.0	0.10	68	.920	0.02
Sum of Severe Cognitive Codes (SevCog)	0	37	105.2	16.3	0	29	99.7	9.3	1.73	53.9 [a]	.090	0.41

	FMS				RA							
	Below (%)	*Above (%)*	*M*	*SD*	*Below (%)*	*Above (%)*	*M*	*SD*	*t*	*df*	*p*	*d*
Form Quality Minus percent (FQ-%)	37	26	100.4	16.2	34	14	99.5	14.7	0.26	68	.799	0.06
Percentage of W and D responses with FQ– (WD-%)	37	34	101.3	14.6	23	29	100.8	13.9	0.13	68	.894	0.03
Form Quality Ordinary percent (FQo%)	34	17	96.6	13.6	11	31	104.1	11.1	-2.51	68	.014	-0.60
Popular (P)	31	37	101.1	15.4	9	57	109.4	15.4	-2.26	68	.027	-0.54
Stress and Distress												
Shading and Achromatic Color (YTVC')	23	49	107.5	17.2	46	9	95.7	12.7	3.29	62.6 [a]	.002 [d]	0.79
Inanimate Movement (m)	46	11	94.8	11.5	29	26	101.3	14.3	-2.12	68	.038	-0.51
Diffuse Shading (Y)	17	40	108.6	15.2	37	6	97.1	10.8	3.68	68	< .001 [d]	0.88
Morbid Content (MOR)	37	43	102.8	15.7	37	20	98.7	12.5	1.21	64.6 [a]	.230	0.29
Suicide Concern Composite (SC-Comp)	23	29	100.6	12.3	46	6	90.5	13.3	3.30	68	.002 [d]	0.79
Self and Other Representation												
Oral Dependency Language percent (ODL%)	37	31	97.0	16.1	34	23	97.6	14.4	-0.18	68	.858	-0.04
Space Reversal (SR)	43	14	97.5	10.6	51	11	96.1	10.6	0.59	68	.560	0.14
Mutuality of Autonomy-Pathology proportion (MAP/MAHP)	11	3	93.5	14.9	9	0	86.3	10.0	1.12	15 [c]	.282	0.57
Poor Human Representation proportion (PHR/GPHR)	20	23	100.4	15.4	20	26	100.9	14.1	-0.15	62 [c]	.881	-0.04
Human Movement with FQ– (M-)	0	17	99.1	9.6	0	26	99.9	8.6	571.0 [b]	-	.495	-0.09
Aggressive content (AGC)	34	11	95.4	12.7	43	17	96.6	14.0	-0.37	68	.715	-0.09
Human content (H)	37	31	99.4	16.3	40	17	97.3	10.8	0.62	58.9 [a]	.537	0.15
Cooperative Movement (COP)	34	37	102.3	12.4	34	34	101.7	12.2	0.21	68	.832	0.05
Mutuality of Autonomy-Health (MAH)	46	29	102.9	13.8	46	29	102.9	14.3	0.00	68	1.000	0.00

	FMS				RA							
	Below (%)	*Above (%)*	*M*	*SD*	*Below (%)*	*Above (%)*	*M*	*SD*	*t*	*df*	*p*	*d*
Page 2												
Engagement and Cognitive Processing												
Whole Percent (W%)	14	6	98.8	11.7	20	0	96.4	11.8	0.86	68	.395	0.20
Unusual Detail Percent (Dd%)	26	0	95.7	11.4	34	3	91.6	9.8	1.61	68	.112	0.38
Space Integration (SI)	17	0	89.2	10.2	37	6	88.3	14.0	0.30	62.0 [a]	.764	0.07
Intellectualized content (IntCont)	40	11	94.7	13.7	34	11	94.5	13.8	0.03	68	.972	0.01
Vague percent (Vg%)	0	11	96.8	13.5	0	6	93.3	9.9	1.22	68	.225	0.29
Vista (V)	0	11	99.8	12.1	0	6	95.0	7.7	489.0 [b]	-	.053	0.47
Form Dimension (FD)	0	17	98.9	14.4	0	3	93.1	8.7	2.03	55.8 [a]	.047	0.49
Percentage of responses on Cards VIII, IX, and X (R8910%)	0	9	99.1	8.4	6	3	96.9	7.9	1.13	68	.263	0.27
Weighted Sum of Color determinants (WSumC)	11	20	100.7	13.5	29	14	94.7	15.2	1.72	68	.090	0.41
Pure color (C)	0	6	100.9	10.9	0	11	100.7	10.9	0.08	68	.939	0.02
Mp/(Ma+Mp)	14	0	95.1	10.8	3	11	105.2	11.4	-2.91	39 [c]	.006	-0.91
Perception and Thinking Problems												
Form Quality Unusual percent (FQu%)	9	17	101.7	13.9	3	9	95.6	10.2	2.08	62.4 [a]	.041	0.50
Stress and Distress												
Potentially Problematic Determinants (PPD)	17	34	103.5	17.5	26	3	96.3	15.6	1.82	68	.073	0.43
Color Blended with Shading or Achromatic Color (CBlend)	0	26	102.3	14.2	0	9	96.2	9.6	2.09	59.8 [a]	.041	0.50
Achromatic Color (C')	26	29	105.8	16.4	31	20	101.4	15.1	1.16	68	.252	0.28
Vista (V)	0	11	99.8	12.1	0	6	95.0	7.7	489.0 [b]	-	.053	0.47

	FMS				RA							
	Below (%)	*Above (%)*	*M*	*SD*	*Below (%)*	*Above (%)*	*M*	*SD*	*t*	*df*	*p*	*d*
Critical Contents percent (CritCont%)	20	14	100.2	17.1	23	9	97.7	15.5	0.66	68	.511	0.16
Self and Other Representation												
All human content (SumH)	26	14	98.4	15.4	23	11	99.1	13.6	-0.21	68	.837	-0.05
Non-pure H proportion (NPH/SumH)	26	20	96.2	18.9	9	20	103.3	10.9	-1.80	45.7 [a]	.078	-0.46
Vigilance Composite (V-Comp)	40	9	94.1	12.0	37	20	96.7	13.3	-0.87	68	.388	-0.21
Reflection (r)	0	20	104.5	14.6	0	6	97.9	8.5	469.5 [b]	-	.022	0.55
Passive proportion [p/(a+p)]	11	14	100.8	12.7	0	43	112.3	11.8	-3.76	62 [c]	< .001 [d]	-0.94
Aggressive movement (AGM)	0	20	103.6	14.0	0	20	102.6	12.9	0.33	68	.743	0.08
Texture (T)	0	20	102.1	14.3	0	9	96.1	9.1	2.11	57.6 [a]	.039	0.50
Personal knowledge justification (PER)	0	26	104.8	14.5	0	17	102.0	14.5	0.81	68	.423	0.19
Anatomy (An)	23	46	106.9	15.9	29	23	104.0	16.3	0.77	68	.442	0.18

Note. Below (%) = percentage of patients who scored below the clinical threshold of 90 SS for Page 1 and 85 SS for Page 2 variables; Above (%) = percentage of patients who scored above the clinical threshold of 110 SS for Page 1 and 115SS for Page 2 variables.

[a] The Welch-Satterthwaite method was used to adjust degrees of freedom given that homoscedasticity could not be assumed; [b] Mann-Whitney; [c] Degree of freedom (df) differed for R-PAS proportion scores because they may not be computed when the denominator is equal to zero; d Significant with False Discovery Rate (FDR) correction with $\alpha = .05$.

Table 2. Descriptive statistics of Rorschach Variables (Complexity-Adjusted Standard Scores)

	FMS				RA							
	Below (%)	*Above (%)*	*M*	*SD*	*Below (%)*	*Above (%)*	*M*	*SD*	*t*	*df*	*p*	*d*
Page 1												
Engagement and Cognitive Processing												
Number of responses (R)	9	34	104.1	10.5	11	14	101.6	7.9	1.12	63.4 [a]	.267	0.27
Form percent (F%)	26	23	100.7	12.0	23	20	99.3	11.0	0.50	68	.620	0.12
Blend	20	14	100.7	10.6	17	6	96.3	7.0	2.05	59.0 [a]	.045	0.49
Synthesis (Sy)	31	3	93.5	10.0	17	3	99.0	7.6	-2.55	68	.013	-0.61
Human Movement and Weighted Sum of Color (MC)	17	3	98.2	7.4	11	17	100.2	10.0	-0.96	68	.340	-0.23
MC to PPD Difference Score (MC-PPD)	37	14	95.9	12.5	17	26	102.6	14.0	-2.09	68	.040	-0.50
Human Movement (M)	37	9	95.1	10.9	20	34	100.6	13.1	-1.92	68	.059	-0.46
Human Movement Proportion (M/MC)	23	26	99.3	15.4	17	40	107.2	18.1	-1.91	64 [c]	.061	-0.47
Color Dominance Proportion [(CF+C)/SumC]	14	11	98.8	14.0	20	9	94.0	13.7	1.17	44 [c]	.248	0.35
Perception and Thinking Problems												
Ego Impairment Index-3 (EII-3)	34	34	100.1	19.5	17	31	102.9	15.5	-0.66	68	.509	-0.16
Thought & Perception Composite (TP-Comp)	31	31	99.7	17.7	20	26	102.2	14.9	-0.63	68	.532	-0.15
Weighted Sum of Cognitive Codes (WSumCog)	31	31	103.5	16.6	11	29	103.6	13.8	-0.04	68	.969	-0.01
Sum of Severe Cognitive Codes (SevCog)	0	37	105.2	16.3	0	29	99.7	9.3	1.73	53.9 [a]	.090	0.41
Form Quality Minus percent (FQ-%)	29	31	101.7	16.2	14	23	102.7	14.0	-0.28	68	.777	-0.07
Percentage of W and D responses with FQ– (WD-%)	40	31	99.1	14.4	29	20	99.6	13.5	-0.15	68	.878	-0.04
Form Quality Ordinary percent (FQo%)	46	11	93.4	13.1	14	14	100.2	10.4	-2.39	64.7 [a]	.020	-0.57

	FMS				RA							
	Below (%)	*Above (%)*	*M*	*SD*	*Below (%)*	*Above (%)*	*M*	*SD*	*t*	*df*	*p*	*d*
Popular (P)	23	34	104.1	15.2	6	60	113.2	14.7	-2.55	68	.013	-0.61
Stress and Distress												
Shading and Achromatic Color (YTVC')	6	46	107.7	11.8	17	9	97.5	9.9	3.92	68	< .001 [d]	0.94
Inanimate Movement (m)	51	0	92.4	8.2	26	26	100	11.9	-3.13	60.2 [a]	.003 [d]	-0.75
Diffuse Shading (Y)	17	54	107.8	13.9	34	6	97.5	9.9	3.55	61.5 [a]	.001 [d]	0.85
Morbid Content (MOR)	26	31	102.9	13.3	29	17	99.6	11.2	1.12	68	.267	0.27
Suicide Concern Composite (SC-Comp)	14	17	100.1	10.9	37	6	92.8	11.9	2.68	68	.009	0.64
Self and Other Representation												
Oral Dependency Language percent (ODL%)	29	20	98.0	13.9	20	23	99.5	12.8	-0.46	68	.650	-0.11
Space Reversal (SR)	43	14	97.5	10.6	51	11	96.1	10.6	0.59	68	.560	0.14
Mutuality of Autonomy-Pathology proportion (MAP/MAHP)	11	9	95.4	17.3	14	0	85.4	9.6	1.37	15 [c]	.190	0.71
Poor Human Representation proportion (PHR/GPHR)	20	23	100.4	15.4	20	26	100.9	14.1	-0.15	62 [c]	.881	-0.04
Human Movement with FQ– (M-)	0	17	99.1	9.6	0	26	99.9	8.6	571.0 [b]	-	.495	-0.09
Aggressive content (AGC)	40	11	94.4	12.2	43	23	96.4	13.5	-0.64	68	.524	-0.15
Human content (H)	34	23	97.0	15.2	26	11	97.0	9.4	0.02	56.8 [a]	.985	0.00
Cooperative Movement (COP)	17	37	104.0	11.1	9	31	105.4	10.1	-0.55	68	.583	-0.13
Mutuality of Autonomy-Health (MAH)	54	17	98.0	10.8	46	14	99.6	12.5	-0.57	68	.569	-0.14

	FMS				RA							
	Below (%)	*Above (%)*	*M*	*SD*	*Below (%)*	*Above (%)*	*M*	*SD*	*t*	*df*	*p*	*d*
Engagement and Cognitive Processing												
Whole Percent (W%)	9	3	99.3	10.7	17	9	99.1	10.8	0.10	68	.920	0.02
Unusual Detail Percent (Dd%)	20	0	96.5	11.5	31	3	91.5	9.9	1.94	68	.056	0.46
Space Integration (SI)	20	0	93.8	9.5	20	3	95.4	12.0	-0.61	68	.544	-0.15
Intellectualized content (IntCont)	20	6	95.5	11.3	14	14	97.0	12.0	-0.54	68	.588	-0.13
Vague percent (Vg%)	0	11	96.5	13.2	0	6	92.9	9.5	1.29	68	.202	0.31
Vista (V)	0	11	98.4	10.7	0	3	94.3	6.0	367.5 [b]	-	.004 [d]	0.47
Form Dimension (FD)	0	14	102.3	12.5	0	3	99.2	6.4	1.32	50.7 [a]	.193	0.32
Percentage of responses on Cards VIII, IX, and X (R8910%)	0	9	98.6	8.5	9	0	95.8	7.5	1.45	68	.151	0.35
Weighted Sum of Color determinants (WSumC)	3	11	100.1	9.4	9	9	97.4	12.4	1.04	68	.300	0.25
Pure color (C)	0	6	100.9	10.9	0	11	100.7	10.9	0.08	68	.939	0.02
Mp/(Ma+Mp)	14	0	95.1	10.8	3	11	105.2	11.4	-2.91	39 [c]	.006	-0.91
Perception and Thinking Problems												
Form Quality Unusual percent (FQu%)	9	23	103.6	13.3	3	9	98.3	10.1	1.87	63.4 [a]	.067	0.45
Stress and Distress												
Potentially Problematic Determinants (PPD)	0	11	104.7	9.8	6	3	100.5	9.3	1.84	68	.071	0.44
Color Blended with Shading or Achromatic Color (CBlend)	0	9	98.9	11.5	0	3	94.6	6.9	478.5 [b]	-	.086	0.45
Achromatic Color (C')	14	23	103.3	14.2	11	9	100.2	13.3	0.95	68	.348	0.23

	FMS				RA							
	Below (%)	*Above (%)*	*M*	*SD*	*Below (%)*	*Above (%)*	*M*	*SD*	*t*	*df*	*p*	*d*
Vista (V)	0	14	98.4	10.7	0	3	94.3	6.0	367.5 [b]	-	.004 [d]	0.47
Critical Contents percent (CritCont%)	17	11	101.7	14.1	11	9	100	13.8	0.50	68	.620	0.12
Self and Other Representation												
All human content (SumH)	17	14	98.8	12.1	9	9	102.6	10.6	-1.40	68	.167	-0.33
Non-pure H proportion (NPH/SumH)	26	20	95.9	19.7	9	6	101.2	10.6	-1.32	43.8 [a]	.195	-0.34
Vigilance Composite (V-Comp)	40	6	93.9	8.8	11	17	100.1	10.3	-2.71	68	.008	-0.65
Reflection (r)	0	20	104.5	14.6	0	6	97.9	8.5	469.5 [b]	-	.022	0.55
Passive proportion [p/(a+p)]	14	14	100.1	12.7	0	40	111.4	11.5	-3.72	62 [c]	< .001 [d]	-0.93
Aggressive movement (AGM)	0	20	103.6	14.0	0	20	102.6	12.9	0.33	68	.743	0.08
Texture (T)	0	20	102.1	14.3	0	9	96.1	9.1	2.11	57.6 [a]	.039	0.50
Personal knowledge justification (PER)	0	26	104.8	14.5	0	17	102.0	14.5	0.81	68	.423	0.19
Anatomy (An)	23	46	106.9	15.9	29	23	104.0	16.3	0.77	68	.442	0.18

Note. Below (%) = percentage of patients who scored below the clinical threshold of 90 SS for Page 1 and 85 SS for Page 2 variables; Above (%) = percentage of patients who scored above the clinical threshold of 110 SS for Page 1 and 115 SS for Page 2 variables.

[a] The Welch-Satterthwaite method was used to adjust degrees of freedom given that homoscedasticity could not be assumed; [b] Mann-Whitney; [c] Degree of freedom (df) differed for R-PAS proportion scores because they may not be computed when the denominator is equal to zero; [d] Significant with False Discovery Rate (FDR) correction with $\alpha = .05$

When comparing the scores of the FMS group with the RA group, we found 17 out of 60 and 15 out of 56 statistically significant differences among the Standard Scores (Table 1) and Complexity-Adjusted Standard Scores (Table 2) variables, respectively, with medium to large effect sizes. After applying the FDR procedure, a similar pattern of significant differences emerged between the two types of Rorschach scores. Considering the Standard Scores, the FMS group showed higher scores on the Stress and Distress Domain variables, such as Sum of Shading and Achromatic Color (YTVC'; d = 0.79), Diffuse Shading (Y; d = 0.88), Suicide Concern Composite (SC-Comp; d = 0.79), as well as in Card Turning (CT; d = 0.84), while the RA group showed higher scores on the Passive Movement Proportion (p/(a+p); d = -0.94). Similarly, considering the Complexity-Adjusted Scores, the FMS group showed higher scores on the YTVC' (d = 0.94), Y (d = 0.85), and V (d = 0.47), whereas the RA group showed higher scores on the Inanimate Movement (m; d = -0.75) and p/(a+p) (d = -0.93).

From the comparison of the R-PAS protocols of the FMS and RA groups with the R-PAS international norms, we obtained unexpected noteworthy findings: while the RA group showed mean scores both higher and lower than the clinical cut-off, the mean scores of all the Rorschach variables were in the average range in the group of patients with fibromyalgia. We found mean scores lower than the clinical cut-off only for SI (M = 89.2 SS) in the FMS group, whereas we observed clinically significant mean scores in the Proportion of Mutuality of Autonomy (MAP/MAHP; M = 86.3 SS; M = 85.4 Cmpl. Adj. SS), Space Integration (SI; M = 88.3 SS), and p/(p+a) (M = 112.3 SS; M = 111.4 Cmpl. Adj. SS) in the RA group. It is worth noting that a number of variables showed mean scores within the normative range, but toward its limits, thus suggesting a tendency instead of a clinical trait. These variables were Card Turning (CT; M = 108.2 SS), Synthesis (Sy; M = 91.9 SS), and Diffuse Shading (Y; M = 108.6) in the FMS group, and Popular (P; M = 109.4 SS; M = 113.2 Cmpl. Adj. SS), Suicide Concern Composite (SC-Comp, M = 90.5 SS), and Unusual Detail Percent (Dd%; M = 91.6 SS; M = 91.5 Cmpl. Adj. SS) in the RA group.

Finally, we evaluated the number of patients reporting clinically significant scores on the Rorschach variables. Percentages relating to both Standard Scores and Complexity Adjusted Standard Scores are reported in Table 1 and Table 2, respectively. About half of the FMS group reported clinically significant scores on CT (high), Number of Responses (R; high), YTVC' (high), m (low), Y (high), An (high), and about half of the RA group reported clinically significant scores on CT (low), Complexity (low), Blend (low), P (high), and SR (low).

4. Discussion

Fibromyalgia is a multifaceted syndrome in which multiple factors may contribute to the experience of pain. In the absence of clinical biomarkers, fibromyalgia is often diagnosed solely on the basis of patient-reported symptoms. In this study, we used the Rorschach test because it allows for standardized, in vivo observation and coding of behaviors as outcomes of implicit personality processes, and thus can assist psychologists/clinicians in determining appropriate and tailored treatment decisions. A meaningful comparison would be between patients with the same medical picture but different etiologies, as is the case with fibromyalgia and rheumatoid arthritis.

Compared to the RA group, the FMS group appeared to experience significant implicit distress that interferes with coping and adaptive mechanisms (YTVC'). An interesting finding is that the distress experienced by the FMS patients was not associated with an anxious ideation or mental tension that intrudes into thinking (m), but with a feeling of helplessness and despair in dealing with stressors (Y). On one end, this finding confirms that women with FMS are at high risk of developing feelings of helplessness (Blom et al., 2012; Nicassio et al., 1995, 1999), possibly due to the unpredictable nature of FMS. Uncertainty in chronic illness is thought to impair a person's ability to make sense of the illness, creating a sense of helplessness that contributes to the development of maladjustment to the illness itself and increased levels of distress (Baastrup et al., 2016; Mishel & Clayton, 2008; Palomino et al., 2007; Reibell & Hutti, 2020; van Middendorp et al., 2008).

Patients with FMS did not report mean scores suggesting the presence of clinically significant features compared to the normative data, in line with previous studies that have found no specific personality or pathological traits in patients with FMS (e.g., Conversano et al., 2018; Johannsson, 1993). Nevertheless, the FMS group was characterized by several features that we can consider clinically subthreshold. The FMS group showed a tendency to prefer simple and straightforward thinking (Sy) at the expense of complexity and flexibility (SI). Both Sy and SI refer to the ability to identify two objects or features of the inkblot and integrate them into a single response. Lower scores on these variables indicate that the "cognitive processing focuses on common, easy to achieve, and straightforward components" (Meyer et al., 2011, p. 353). The tendency to prefer simple and straightforward thinking and the limited flexibility could probably affect the ability to differentiate the components related to pain experiences (Vallejo et al., 2021): for example, we can speculate that patients with FMS could experience pain without grasping the nuances and differences between the different pain episodes, so that the experience of pain is always similar and

constantly intense (this is only a risky hypothesis, but it deserves to be mentioned to formulate useful clinical considerations). Moreover, when controlling for Complexity (i.e., using Complexity-Adjusted Standard Scores), 46% of the patients with FMS scored below the clinical cut-off on Form Quality Ordinary (FQo%), suggesting a diminished ability of these patients to interpret the environment in a conventional and realistic manner. Indeed, reading and interpreting the environment are the results of a range of cognitive, emotional, and social skills (e.g., executive functions, social cognitions) that appear to be impaired in patients with FMS (Di Tella et al., 2017, 2018).

In general, our findings only partially supported our hypotheses. Specifically, our hypothesis regarding the presence of impaired coping abilities and stress management was confirmed, but we did not find the presence of alexithymia (e.g., F%, P, M, color responses ranging from Pure C to FC). Although the main role of alexithymia in patients with FMS is still unclear, several studies reported a high presence of alexithymia in patients with FMS compared to the general population (Aaron et al., 2019; Di Tella et al., 2016); however, it should be noted that most of these studies used self-report instruments such as the Toronto Alexithymia Scale (TAS -20; Bagby et al., 2006), which are based on a (partially) different conceptualization of alexithymia and, being self-report, depend on the examinee's introspection ability. In their most widely used and accepted definition, alexithymia is conceptualized as a reduced ability to identify and describe subjective feelings, difficulty distinguishing between feelings and bodily sensations of emotional arousal, impaired imagination, and a stimulus-bound, externally oriented cognitive style (Sifneos, 1973; Taylor et al., 1999). On the other hand, the Rorschach variables identified to assess alexithymia focus only on the presence of excessive control of emotions to avoid experiencing and being implicated by them (Donges, 2014; Porcelli & Mihura, 2010). Therefore, given that patients with FMS have difficulty managing and/or experiencing emotions in the early stages, i.e., emotional processing, recognition, and description of emotions (Aaron et al., 2019), they do not show an excessive control of emotions, which requires the step of rethinking the experiences and subsequent verification that can be detected by the Rorschach test.

Finally, regarding the hypothesis about excessive concern for the body (Anatomy, An), we found no significant differences between the two groups, with mean scores within the normative limits. This finding is consistent with the previously reported absence of differences in health anxiety between patients with FMS and patients with RA (Tesio et al., 2019). However, using the clinical cut score, we found that 46% of the patients with FMS scored above threshold on An (compared to 23% of the RA patients). In a very recent paper, Axelsson and colleagues (2020) found a prevalence of approximately 35% of Somatic Symptom Disorder (SSD) in patients with FMS,

suggesting that more than one-third of patients with FMS demonstrate excessive and persistent worry for body symptoms. From a clinical perspective, it is important to identify these patients as several studies have found that preoccupation with symptoms and health anxiety are predictive of a less favorable long-term prognosis in pain conditions (Vlaeyen & Linton, 2012).

Although our findings provide useful information for understanding the personality profile of patients with FMS, the study has some limitations. First, the sample size is relatively small; however, to address this potential problem, we used the FDR procedure to control for Type I errors. Second, we found a medium, significant difference between the mean age of the two groups (d = 0.63). Previous findings suggested that age is positively related to pain perception and duration in both FMS and RA patients, so that older patients show higher pain behaviors than younger patients (Baumstark et al., 1993; Cronan, et al., 2002; Jakobsson & Hallberg, 2002). Indeed, chronic pain tends to be more intense with age, reaching peak pain intensity between 45 and 65 years of age (Langley, 2011; see Molton & Terrill, 2014). In our two groups, the mean age was in the midlife (i.e., FMS: M = 50.8 years; RA: M = 56.7 years) and the majority of patients were middle-aged (i.e., FMS: 77.1%; RA: 68.6%). Therefore, we can assume that the percentage of women who experienced similar levels of pain intensity was comparable in both groups, suggesting that the impact of age on pain intensity was equally distributed in both groups.

Our study has some important implications for practicing psychologists who may work with patients with pain conditions. The most important contribution to the personality assessment of these patients is related to the R- PAS ability to deal with different levels of complexity. In our sample, Complexity was evenly distributed in the categories below, average, and above the clinical threshold (Table 1), suggesting that the patients with FMS were characterized by different levels of psychological activity, effort, and flexibility in coping. Nevertheless, when we analyzed the Complexity-Adjusted Standard Scores, we found increased levels of implicit distress and a tendency toward a more unconventional approach to life. Therefore, Complexity-Adjusted scores provide an opportunity to evaluate the Rorschach protocols under the assumption that the examinees' level of complexity were at median, allowing clinicians and researchers to identify the problematic features. Furthermore, the use of a performance-based test like the Rorschach in this clinical population allows clinicians to obtain a more complex, diagnostic picture of the patient and to explore different variables that are unlikely to emerge in self-report measures. Indeed, it is likely that patients with FMS report biased data due to their mentalization deficits and poor awareness of illness.

From a clinical point of view, personality assessment allows a dimensional evaluation of the individual beyond the chronic disease and, consequently, a more effective and tailored intervention. In particular, our findings on the presence of increased levels of implicit stress associated with impaired coping abilities highlight the importance of psychological interventions focused on empowering patients with FMS with self-management strategies to promote adaptive coping strategies to stressor, thereby reducing psychological distress.

Conflict of Interest Statement

The authors declare that the research was conducted in the absence of any potential conflict of interest.

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