

## A Study Of Rorschach's Test In Patients With Autoimmune Diseases And Possible Relation With Opioid And Cannabinoid Systems

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### ABSTRACT

#### Objective

*There are few studies examining psychological characteristics in patients with autoimmune disease, while significantly more attention has been given to emotional, personality changes and cognitive profile in cancer disease. A irreversible chronic and pervasive disorder brings many life stresses and affects the patient's ability to cope with them. This study explored the personality characteristics in a sample of patients affected by the most common autoimmune diseases. .*

#### Methods

*After having informed consent, 40 patients (8 male and 32 female, age;  $46 \pm$  standard deviation) with autoimmune disease were included. Information about sociodemographic data and clinical details was collected using the sociodemographic and clinical data sheet from the drawn sample. All participants were administered the Rorschach Test by the psychologist.*

#### Results

*From a relationship point of view, all patients approached the test with a collaborative attitude and they often manifested an open interest for the diagnostic material. The Rorschach administration was conducted without any irregularity. Most of patients gave more than 20 answers, 46% of the patients gave a number of detail answers inferior to the normative range, 65% of the test presented a number of human content in the normative range. In 70% of the patients, the index intimate resonance (T.R.I.) index was extra tensive. Our findings show that the patients in our sample perceive themselves as being less competent than others, at some cost to their self-esteem. A large percentage relies on an avoidant style of coping with problems. The spirituality is present in patients with autoimmune disease unlike cancer patients. Its absence tends to compromise the sexual one as well.*

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## Conclusion

*These findings suggest that some variables of the Rorschach test could assist with medical treatment of autoimmune disease and the test could be one of the most useful diagnostic tools to explore personality traits and psychological functioning.*

**Keywords:** Rorschach, autoimmune, spirituality

## INTRODUCTION

Before the development of the psychoanalytic approach to human affective disturbances, the first dream of Freud was to identify the neurochemical bases of the emotions and mental states, with particular importance of the sexual unconscious life (1). Unfortunately, the little knowledge regarding the neurobiochemistry available at the time made it impossible the investigation and the identification of the neurochemical processes responsible for the different emotions and unconscious states. In any case despite to the low neurobiochemical knowledge Freud was able to propose for the future a synthetic schema to interpret the neurochemical dynamics of brain functions in relation to the principle of eros (pleasure and love) and thanatos (corresponding to the disturbance related to the unconscious life, including depression, anxiety, stress, aggressivity, hanedonia). According to the Pnei discoveries, today it is now the two human major profile of pleasure and pain, corresponding to the principles of eros and thanatos, are mediate by the two major brain interneuronal system, respectively represented by the endocannabinoid and opioid-melanocortin system (2). Then it becomes fundamental to investigate the balance between this two essential brain system in the two main human systemic diseases, consisting of cancer and autoimmunity. According to the data available up to now, both the neoplastic and autoimmunity diseases are characterized by an enhancer brain opioid tone, why only the neoplastic disease would be characterized by an concomitant deficiency endocanna-

binoid function, which isn't there in the autoimmune pathology (3). Therefore, opioid system and cannabinoid system relation would be expected to be clearly enhanced in cancer patient because of the simultaneous increase in the opioid tone and decline in the cannabinoid one. Because of the previous documented relation between the psychoneuroimmunological condition of patients and the response to the Rorschach's test the present study was performed to investigate the response to the Rorschach's test in relation to the immune state in patients with autoimmune disease and to compare the results to those preview observed in cancer patients (4).

Research in the psychological aspects of illnesses has traditionally focused on cognitive and neuropsychiatric changes, while the area of personality has been much less studied (5). When we address personality we refer to individual traits and not to psychiatric symptoms. Personality consists of stable internal factors that make the behaviour of a person consistent over time and different from the behaviour of others. Mood or emotional states may change dramatically over time, but personality does not. However there have been only a few studies examining personality in patients with autoimmune diseases and those mainly focused on the Five Factor Model (6). Benedict et al. found elevated maladjustment (neuroticism) and a reduction in empathy, agreeableness, and conscientiousness with sclerosis multiple (7). Despite the diffusion and importance given to psychological aspects, in fact

at a clinical level patients with autoimmune disease do not seem to be adequately treated from the point of view of their psychological experience. The psychological condition in autoimmune diseases has been even less investigated than in cancer disease.

This study was conducted in order to evaluate the psychological and spiritual profile in the patients with autoimmune diseases. We used the Rorschach's test, highlighting the three criteria that had already proven to be most important in previous studies: the self integrity, the sexuality and the spirituality (8).

## PATIENTS AND METHODS

The study included 40 consecutive patients (M:8/F:32; median age: 46 ±10 standard deviation, range: 30-68). The clinical characteristics of patients are reported in Table 1. Patients present spontaneously at the clinic or conducted by their families to receive a clinical psychological evaluation.

Table 1. Clinical characteristics of 40 patients with autoimmune diseases.

### CHARACTERISTICS

M/F:	8/32
Median age	46
TYPES OF AUTOIMMUNE DISEASE	
fibromyalgia	4
les	2
Hashimoto's thyroiditis	14
rheumatoid arthritis	6
multiple sclerosis	4
nephritis	2
ulcerative colitis	4
psoriasis	4

The informed consent was signed by the patients themselves during the first meeting at the clinic. The Rorschach's test has been administrated by a psychologist.

The autoimmune diseases were the follows: psoriasis, rheumatoid arthritis, panfigo, ulcerative colitis, multiple sclerosis, Hashimoto's thyroiditis.

Patients were followed from 2017 to 2024.

The diagnosis was determined on the basis of immunological, radiological and rheumatological investigations.

The Rorschach inkblot test have been administered to all patients. The method used to score the test followed the method of the Italian School, applying the normative scores of the Italian sample from Passi Tognazzo (medium and normative values of Rorschach indexes in an Italian sample of 736 subjects between 18 and 65 years).

### The Rorschach's test

The Rorschach Test has standard administration rules and is the most commonly used scoring system in the world (9). It has good inter-rater and test-retest reliability with good statistical construct validity. In this system, seven major groups of variables, collectively referred to as a 'cluster', are evaluated: 1) control and stress tolerance, 2) information processing, 3) mediation, 4) ideation, 5) affect, 6) self perception, and 7) interpersonal perception and behaviour.

The affective features cluster, including for example the form: colour ratio, the constriction ratio, and the presence of pure colour, provides information about the way people experience emotions. These

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indexes differentiate people having adequate capacity to experience and express emotions from individuals inclined to process affects and emotional activation in an excessively intense or compulsory, disfiguring way, which implies consequent adjustment difficulties. The cluster regarding situational stress and control provides information on the individual psychological resources, ability to handle stress, and ability to confront consistently and effectively with life events. It includes, among others, the coping style (introversive versus extravertive), the human and inanimate movement, the difference score, and the sum of shading. The cluster of interpersonal perception helps in identifying whether a person is capable of sustaining a reasonable level of comfort in relationships and interpersonal interest, or *vice versa* if she/he is inclined to be disinterested, detached, or uncomfortable in social situations. Indexes, such as cooperative movement, poor human representation and personal responses can help to recognize if the individual is able to establish intimate and secure interactions or keeps distance and avoids proximity in order not to be hurt and if the person can establish a balance between collaboration-accountability and competitiveness- assertiveness, or has the tendency to become overly submissive/ dominant in interpersonal relationships. Moreover the indexes pertaining to this cluster can discriminate between individuals who may accurately and empathically perceive other people's acts in social situations, and those who may instead be inclined to misread the motivations of others and misunderstand the implications of interpersonal events. The cluster of self-perception provides information on how people see themselves, especially characteristics can be measured by indexes, such as morbid and reflections responses and the egocentricity index. The last clusters regard information processing, cognitive mediation, and ideational functioning, and measures how people focus attention on life events, perceive the environment and integrate perceptions. The styles of information processing are measured for example through the synthesized or developmental quality vague responses, perseverations, and organizational frequency while cognitive mediation can be individuated by popular, conventional, appropriate form, or *vice versa* distorted forms. This helps to evaluate if the individual perception of events and people is similar to the most frequently reported. Critical special scores, such as the weighted sum of the first six special scores, signal a potential disturbance of thinking processes, which are measured by the ideational functioning cluster. A successful adaptation indeed is promoted by an attitude of openness to new experiences, along with the ability to efficiently organize impressions and to perceive experiences in a realistic way. A logical, coherent, constructive, but also flexible and not too much conventional style of thinking can help to adaptively build and organize experiences and impressions about life events. The emerging comprehensive picture of the personality functioning can be interpreted within a psychometric and psychoanalytic framework. Moreover the so-called "access keys", identifying the more vulnerable characteristics, help in identifying disturbed areas in emotion regulation and thought processes, which may also entail a psychopathological disorders. In this study was used for the interpretation in order to provide a structural overview and an interpretative report for each protocol. The variables analyzed were selected on the basis of the most recent meta-analysis concerning "The Validity of Individual Rorschach Variables: systematic Reviews and Meta-Analyses of the Comprehensive System". However, indexes were deliberately not too rigorously selected due to the absence of previous studies, in order to provide

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an exploratory analysis of these first data.

### Scoring procedures

The responses of patients were scored by the first author, a clinical psychologist. Scorings were reviewed by a second clinical psychologist affiliated with a different department and finalized after discrepancies had been discussed. Further consultations were made with a Rorschach expert to finalize data when agreement was not reached between the two local psychologists. Both clinical psychologists were trained in the administration and scoring of the Rorschach and have extensive experience with this system.

### Statistical analysis

Frequency data for major variables or indices was examined using the chi-squared test. These were analyzed using SPSS v.11.5. For all analyses, a probability value of  $p < .05$  was considered significant and variables were noted when they deviated from the expected value or range.

## RESULTS

The results were compared with a historical group of cancer patients and analyzed from a statistical point of view with the chi-square test.

### Control and stress tolerance

We examined the capacity to make decisions and implement specific behaviors that meet the demands of situations which involve the use of resources, stimulus demands, and stress tolerance. The Adjusted D score (AdjD, one's capacity for control), the D score (D, stress tolerance and elements of control), and the Experience Actual score (EA, available resources to make it possible to adjust one's own needs and emotions to match external reality) in patients with autoimmune diseases

were within the expected range, and no significant inter-group differences were apparent. The Experienced Stimulation score (es, stimulus demands) of autoimmune patients was within the expected range, but was significantly higher than that of the oncological group ( $p < .05$ ). Three types of coping styles have been identified: (i) introversive-introspectionbased; (ii) ambient-inconsistent or flexible in using emotions or introspection according to situations; and (iii) extratensive-emotionbased. The frequency of introversive style in patients with autoimmune diseases was significantly lower (19%) than the oncological group (33%;  $p < .05$ ). No intergroup difference was found in the frequency of ambient style between autoimmune patients (56%) and the oncological group (53%). The frequency of extratensive style in autoimmune patients was relatively higher (25%) than the oncological group (14%;  $p < .05$ ). Control and stress tolerance data suggest that autoimmune patients have originally adequate capacities for control and stress tolerance and utilize appropriate psychological resources as with most adults (EA, AdjD and D). Fewer autoimmune patients exhibited the introversive coping style, implying that fewer autoimmune patients reasoned things through while keeping emotions aside before making decisions or problem-solving. Half of autoimmune patients and half of the oncological group were classified as exhibiting the ambient style, which is an inconsistent or flexible way of using thoughts and emotions according to situations. More CP patients exhibited the extratensive style, suggesting that they tend to invest more of their feelings into decision-making and/or problem-solving processes and are more likely to use interactions with their environment as a source of information and/or gratification.

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## Affect

Variables relating to affect examine the role of emotions in the psychological function and organization of the person. The frequency of a positive Suicide Constellation (S-CON, self-destructive pre-occupation) in autoimmune patients was significantly higher (6%) than the oncological group (1%;  $p < .01$ ). Lambda (L, economic use of resources) was significantly lower in autoimmune patients than the oncological group ( $p < .01$ ). The frequency of a positive depression index (DEPI  $> 4$ , an implicit depressive mood) in autoimmune patients was significantly higher (35%) than the oncological group (20%;  $p < .05$ ). The Achromatic Color variable (C, excessive internalization of feelings) in autoimmune patients revealed higher deviation from the expected range, and was significantly higher than that of the oncological group ( $p < .05$ ). The Diffuse Shading variable (situational stress-related psychological helplessness) in autoimmune patients revealed higher deviation from the expected value, and was significantly higher than the oncological group ( $p < .01$ ). Multiple determinants (Blends, psychological complexity) in autoimmune patients revealed higher deviation from the expected value, and was significantly higher than the oncological group ( $p < .05$ ). With regard to the modulation of emotional discharge, the Form Color response (FC, well-controlled emotional experiences with situation appropriate expressions) in autoimmune patients was significantly lower than the oncological group ( $p < .01$ ); whereas the Color Form responses (CF, less restrained forms of affective discharge/expression) in autoimmune patients was significantly greater than the oncological group ( $p < .05$ ). The frequency of  $(CF + C) > FC + 2$  in autoimmune patients was significantly higher (35%) than the oncological group (12%;  $p < .01$ ). In summary, the data relating to affect suggest that patients with

autoimmune disease experienced unusually high levels of distress and/or emotional discomfort (FM +  $m < \text{SumShading}$ ), such as self-destructive thoughts (S-CON), depressive mood (DEPI  $> 4$ ) and a sense of helplessness due to situational stress (SumY). These patients did not use the tactic of psychologically ignoring the complexity and/or ambiguity of a field (L), and their psychological function and processing seemed more complicated and confused by ambivalent feelings (Blends, Col-Shading). Their modulation of emotional discharge was likely to be unstable; in other words, CP patients exhibited a tendency to either excessively internalize their feelings (SumC'), or discharge them expulsively in a more uncontrolled manner (FC, CF, and  $CF + C > FC + 2$ ).

## Cognitive functions

Here, we examined three aspects of cognitive function or a cognitive triad: information processing, cognitive mediation and ideation, thinking process leading to some form of mental conceptualization of translated information.

Variables of information processing assess mental procedures entailed in the input of information. There were no significant differences in the total number of responses (R) to 10 inkblots between autoimmune patients ( $22.02 \pm 8.45$ ) and the oncological group ( $23.51 \pm 6.9$ ), or when considering the Whole response (W, commendable processing effort) and the Hypervigilance Index (HVI, hyper-alertness). Common Detail response (D, easy or economical scanning) was significantly lower in autoimmune patients than the oncological group ( $p < .01$ ). Unusual Detail response (Dd, focus more on minute or unusual features of a new field of information with more processing effort) in autoimmune patients deviated significantly from the expected

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range, and was significantly higher than the oncological group ( $p < .05$ ). The Zd value (Zd, efficiency of scanning activity during information processing) was significantly higher in autoimmune patients than the oncological group ( $p < .01$ ). Perseverations (PSV, difficulty in shifting attention) was slightly higher than expected, and was significantly higher in autoimmune patients than the oncological group ( $p < .05$ ). No significant inter-group differences were found in terms of Developmental Quality (DQ, quality of processing activity).

In summary, information processing data suggest that autoimmune patients are less likely to use economical scanning to gain new information (D); instead, they focus more on minute or unusual features within a new field of information (Dd). Scanning efficiency and the quality of processing activity of autoimmune patients appears more than adequate compared to the oncological group (Zd), but more patients in the autoimmune patient group exhibited a little difficulty in shifting their attention (PSV).

Variables concerning cognitive mediation assessmental operations that translate or identify inputted information.

The Perceptual-Thinking Index positive score (PTI  $> 3$ , mediational and ideational difficulties) was significantly greater in autoimmune patients than the oncological group ( $p < .01$ ). XA% (appropriate form use) and WDA% (appropriate form use in common areas) in autoimmune patients was within the expected range but was significantly lower than the oncological group ( $p < .01$ ,  $p < .05$  respectively). In summary, cognitive mediation data suggest that with autoimmune patients, mediation was usually appropriate for the situation, or that they exhib-

ited the basic skills necessary to interact successfully with situations around them, although they were less appropriate than those of the oncological group (XA%, WDA%). The probability of fewer conventional responses occurring in simple and/or precisely-defined situations with autoimmune patients was low (Xu%, P), even if problems were observed (X+ %). However, autoimmune patients exhibited a moderate elevation in the incidence of mediational dysfunction (PTI  $> 3$ , X-%, FQ-), when associated directly to unstable affective conditions, particularly relating to possible feelings of negativity or anger (S-).

In general, ideation data suggest that autoimmune patients' conceptual thinking was often distinguished by a moderately pessimistic mindset (MOR), but that they did not defensively substitute fantasy for reason in stressful situations ( $Mp < Ma$ ). Furthermore, autoimmune patients did not exhibit a conceptual failure with discrimination and/or the inability to use concrete reasoning (INCOM), but they did show cognitive mishaps (Wsum6) with regard to: 1) use of distorted language and/or idiosyncratic modes of expression (DV); 2) indecisiveness and/or a defensive attempt to detach themselves from the task at hand (DR); and/or 3) strained effort or use of unconventional reasoning to justify an answer (ALOG).

### **Self-perceptions and Interpersonal-perceptions**

Vista response (V, less positive introspective behavior) showed a slightly higher incidence from the expected value, and was significantly greater in autoimmune patients than the oncological group ( $p < .05$ ). Morbid content (MOR, negative self-image in self-perception) in autoimmune patients showed a slightly higher incidence from the expected value, and was significantly greater than the oncological

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group ( $p < .05$ ). In summary, self-perception data suggest that autoimmune patients' introspective behavior on themselves tends to focus less on their positive sides (V), and that their self-image is likely to be negative (MOR). However, this perception of themselves or others might not always be based on reality (Pure H = 0).

Interpersonal perception and behavior data assess how a person perceives others, and how they will behave in various interpersonal situations. The frequency of positive Coping Deficit Index (CDI > 3, social immaturity or ineptness) showed no intergroup difference between autoimmune patients and the oncological group. Aggressive response (AG, aggressiveness or competitiveness on interpersonal exchanges) was slightly greater than the expected value, and significantly higher in autoimmune patients than the oncological group ( $p < .01$ ).

## DISCUSSION

An enhanced mu opioid system activity has been proved to promote cancer onset and progression (10). Indeed stress-depression-related promotion of the tumor growth, because of the immunosuppressive and proliferative effect on tumor development (11). On the other hand, the enhanced IL-17 secretion observed in patients with autoimmune disorders, which is responsible for their pathogenesis by suppressing T regulatory (T reg lymphocyte function), could depend at the least in part on the enhanced mu opioid tone, which stimulates IL-17 secretion (12). On the contrary, cannabinoid system plays an inhibitory role on IL-17 secretion (13). The lack of sexual pleasure repression in patients with autoimmune disease observed in the present study excluded an concomitant endocannabinoid deficiency in these patients (14). In addition the increased opioid tone could induce a decrease of the secretion of IL-

2, that appears to inhibit IL-17 and stimulate T reg cells activity (15). At present the endocannabinoid function may be clinically investigated by the simple detection of fatty acid amide hydrolyase (FAAH), the enzyme involved in cannabinoid degradation. Then the evidence of high FAAH levels would reflect an endocannabinoid deficiency. Therefore, the future studies by detecting FAAH levels in relation to opioid melanocortin system function would be required to better define the psychoneuroendocrine condition of patients with autoimmune disease with the respect to those observed in advanced cancer patients. Future studies will take into consideration the responsiveness to pain therapy in relation to the Rorschach's test: it will be necessary to evaluate whether the psychological status influences the prognosis of the disease.

The dream of the historical beginning of PNEI to treat the human immune-mediated systemic diseases, due to a reduced or to an exaggerated immune reactivity by acting not only directly on the immune system, but also on the neuroendocrine regulation of the immune system in an attempt to perfectly reproduce the psychoneuroendocrine and immune biochemistry of the status of health, seems really to become clinically possible, at least in terms of modulation of the two main brain areas of the neuroimmunomodulation, the opioid and the cannabinergic systems.

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