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“Old stains, new perspective; Psychobiological models of personality and Rorschach”.

“Viejas manchas, nuevas miradas; Modelos psicobiológicos de la Personalidad y Rorschach”.

“Velhas manchas, novos olhares; Modelos psicobiológicos de Personalidade e Rorschach”.

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Resumen

El Rorschach sigue siendo uno de los test psicológicos de referencia a nivel mundial a casi cien años de su creación. Por otra parte, en los últimos años se están produciendo procesos de profunda transformación en los modelos, teorías, criterios diagnósticos y tipos de intervenciones en psicología clínica y psiquiatría. En dicho proceso las neurociencias ocupan un rol central. Resulta por lo tanto indispensable evaluar la pertinencia y vigencia del Rorschach en ese nuevo panorama.

Parte de estos nuevos paradigmas son las teorías dimensionales psicobiológicas de la personalidad. En el presente artículo, trabajamos con dos de ellas, las teorías de personalidad de Cloninger y Zuckerman.

El presente trabajo expone las correlaciones entre variables del Rorschach y de las escalas TCI-140 y ZKPQ-50-CC en una muestra representativa (N=80) uruguaya.

Encontramos correlaciones significativas entre todas las dimensiones del TCI-140 y el ZKPQ-50-CC con un mínimo de 6 variables del Rorschach. Concluimos que el Rorschach puede ser una herramienta de investigación y evaluación relevante, pero es necesario mejorar algunos aspectos del mismo.

Palabras clave: personalidad; test de Rorschach; temperamento; carácter; investigación empírica; psicobiología.

Abstract

The Rorschach remains one of the worldwide reference psychological tests, about hundred years since its creation. Moreover, in recent years there are processes of deep transformation in the models, theories, diagnostic criteria and types of interventions in clinical psychology and psychiatry. In this process the neurosciences have a central role. It is, therefore, essential to assess the relevance and validity of the Rorschach in this new background. Part of these new paradigms is the dimensional psychobiological personality models. In this paper, we work with two of them, the Cloninger and Zuckerman personality models.

This paper presents the correlations between Rorschach's variables, TCI-140 and ZKPQ-50-CC scales in a representative (N=80) Uruguayan sample. We found that all dimensions of TCI-140 and ZKPQ-50-CC show significant correlations with at least 6 Rorschach variables. We conclude that the Rorschach test could be a relevant research and assessment tool, but some improvements are necessary.

Key words: personality; Rorschach test; temperament; character; empirical research; psychobiology.

Resumo

O Rorschach ainda é um dos testes psicológicos de referência a nível mundial há quase cem anos da sua criação. Por outro lado, nos últimos anos se produzem processos de profunda transformação nos modelos, teorías, critérios diagnósticos e tipos de intervenções em psicologia clínica e psiquiatria. Em dito processo as neurociências ocupam um rol central. Resulta no entanto, indispensável avaliar a pertinência e vigência do Rorschach nesse novo panorama. Parte destes novos paradigmas são as teorías dimensionais psicobiológicas da personalidade. No presente artigo, trabalhamos com duas delas, as teorías da personalidade de Cloninger e Zuckerman.

O presente trabalho expõe as correlações entre variáveis do Rorschach e das escalas TCI-140 e ZKPQ-50-CC em uma mostra representativa (N=80) uruguiaia.

Encontramos correlações significativas entre todas as dimensões do TCI-140 e o ZKPQ-50-CC com um mínimo de 6 variáveis do Rorschach. Concluimos que o Rorschach pode ser uma ferramenta de investigação e avaliação relevante, mas é necessário melhorar alguns aspectos do mesmo.

Palavras chaves: personalidade; teste de Rorschach; temperamento; caráter; investigação empírica; psicobiologia.

Acknowledgment:

This article is part of a doctoral thesis under the format “Compendium of publications”.

It would not have been possible without the collaboration of the Thesis Directors, Dr. Fernando Jimenez and Dr. Guadalupe Sanchez of the University of Salamanca, and the Commission for Scientific Research of the Universidad de la República. To Nati.

Doctoral Thesis: *Reliability and Validity of Rorschach: contributions of the Item Response Theory and psychobiological models of personality Cloninger and Zuckerman*. Financing institution: *Universidad de la República*. Dates from: 2012-2015.

The study of the personality has been one of the privileged research fields in Psychology since the beginning. Further than scientific and pre-scientific background of the Psychology of Personality, the 30s (XX century) could be pointed out as its “founding” period (McAdams, 1994). An important number of theorists and theories have enriched and developed the field since then. The psychoanalysis, the behaviorism, the trait theories (Cattell, Eysenck, Costa y McRae), the existentialism, the cognitive psychology and the psychobiological models, among others (McAdams, 1994), could be cited as an example.

In the last years, Psychiatry and Clinical Psychology are in a turning point and going under deep reviews at all levels. The DSM-5 (American Psychiatric Association, 2013) and its NIMH counterpart the “Research Domain Criteria (RDoC)” (Insel et al. , 2010; Østergaard, Fava, Rothschild, & Deligiannidis, 2014) are two of the paradigmatic examples. One of the most outstanding elements of this process is the collapse of the categorical models and the need of developing effective dimensional models that combine accumulated knowledge regarding personality, psychopathology and cognition, among other aspects intertwined, that

converge in the concept of “Mental Health or Pathology” (Esbec & Echeburúa, 2011; Insel et al. , 2010; Skodol et al. , 2011).

There is strong empirical evidence that supports the tight relationship between normal and pathological personality (personality disorders) and other kind of psychopathologies (Bayón, 2006; Miettunen & Raevuori, 2012; Svrakic & Cloninger, 2010). On the other hand, personality and psychopathology are related with several neurobiological elements (Olivas & Solís, 2009): genetic markers, the functioning of neurotransmission mechanism, hormonal levels, volume and development of specific brain areas, brain activity patterns, cognitive functions, etc.

On the other hand, the high frequency in comorbidities and the overlap of axis in one of the reasons for the removal of the distinction between the Axis I and Axis II in the DSM-5 (American Psychiatric Association, 2013). This leads towards the development of theoretical models that combine personality and psychopathology.

In this context dimensional models of personality have taken a highlighted role in the theoretical and methodological reset of mental health paradigms (Caspi et al., 2013; Paris, 2005; Skodol et al., 2011).

This study is based in two dimensional models of the personality that have a leading role in the review process mentioned: the psychobiological models by Robert C. Cloninger (Cloninger, Svrakic, & Przybeck, 1993) and Marvin Zuckerman (Zuckerman, 2005), also known as the “alternative big five factor” model.

These theoretical models highlight due to its influence in the current psychopathology manuals, as the DSM-5 (Cloninger, 2010; Skodol et al., 2011), and for its interest regarding the psychobiological bases of the personality (Albores-Gallo, Márquez-Caraveo, & Estañol, 2003; Bayón, 2006; Dolcet i Serra, Aluja, & García Rodríguez, 2006). The models have a clear clinical orientation, in its broadest sense (Bayón, 2006; Zuckerman, 2005), with an important number of researches in a wide spectrum of mental disorders (Bayón, 2006; Cloninger et al., 1993; Fischer, Smith, & Cyders, 2008; Fossati et al., 2007; Miettunen et al., 2004; Miettunen & Raevuori, 2012).

Both models show a theoretical model that explains the individual differences in terms of psychophysical differences in the brain (Pervin, 1998). Cloninger defines two groups of personality traits, four temperament traits and three character traits (Svrakic

& Cloninger, 2010). The temperament traits are related mainly with the limbic system and the striatum, and the influence of some neurotransmitters upon traits: serotonin related to the Harm Avoidance trait, dopamine in the Novelty Seeking trait, noradrenalin in the Reward Dependence trait, and noradrenalin and GABA in the Persistence trait (Cloninger et al., 1993; Dolcet i Serra et al., 2006; Svrakic et al., 2002; Svrakic & Cloninger, 2010).

These traits are highly heritable and have a high stability over life (Albores-Gallo et al., 2003). The close relation between the dimensions of temperament and different biological elements is widely proved, and this aspect not only is covered in the Cloninger's theoretical model (Quebradas, 2014). The character traits, meanwhile, have a stronger social learning component, they are more modifiable and less heritable (Albores-Gallo et al., 2003). The hippocampus and the frontal and temporal cortex are the most relevant brain areas regarding these traits (Svrakic & Cloninger, 2010). The relation between them and the mental disorders is explained in two levels: firstly, impairments in the Self-directedness and Cooperativeness traits explain the dysfunction regarding the interaction with

the environment; secondly; extreme temperament traits predispose the person to a dysfunctional behavioral profile, meaning, pathologies or specific pathological behaviors (Svrakic & Cloninger, 2010). For example, a high Harm Avoidance could predispose to depression-anxiety disorders, meanwhile, the Novelty Seeking could predispose to externalized disorders (Svrakic & Cloninger, 2010). Since the dimensions of Self-Transcendence and Cooperativeness are excellent predictors of the presence of a mental disorder (though in an unspecific way, not with a range of specific disorders), in the last years an index known as "Maturity" index was designed. This index is the result of the dimensions mentioned above (Bordalejo et al., 2014).

Zuckerman's model proposes five personality traits, defined as temperament traits. The definition of temperament is similar to the one proposed by Cloninger (Albores-Gallo et al., 2003). His explanatory model for those five traits is highly complex and neurotransmitters (such as dopamine, serotonin, etc.), hormones (testosterone, noradrenalin, etc.) and enzymes are involved in cortical and sub cortical activation processes (Dolcet i Serra et al., 2006; Zuckerman, 2005). The author proposes that when these temperament traits

are extreme the subject could be predisposed towards a specific dysfunctional behavioral profile and/or mental disorders (Albores-Gallo et al., 2003; Zuckerman, 2005).

There are several scales that asses personality traits in both models such as the different versions of the TCI (Cloninger, Przybeck, Svrakic, & Wetzel, 1994) and ZKPQ questionnaires (Aluja et al., 2006)

On the other hand, the Rorschach test, created by the Swiss psychiatrist Hermann Rorschach in 1921 (Rorschach, 1921), is one of the worldwide benchmark tests in the clinical field (Meyer & Archer, 2001; Society for Personality Assessment, 2005). Even though, between the 70s and the 90s was target of several inquiries regarding its scientific and psychometric properties (Hunsley & Michael, 1999; Márquez Sánchez, 1986), the development of the Rorschach Comprehensive System (Exner, 1969), gave more statistic psychometric thoroughness to the test. This System allowed to improve aspects that were seriously questioned (Ganellen, 2001; Hibbard, 2003; Hiller, Rosenthal, Bornstein, Berry, & Brunell-Neuleib, 1999; Meyer & Archer, 2001; Meyer, Riethmiller, Brooks, Benoit, & Handler, 2000; Park, 2009; Society

for Personality Assessment, 2005). Taking into account that this test is less easily influenced for confounding variables, such as social desirability and self-perception, than the “self-reported questionnaires” (Meyer & Archer, 2001) –included the TCI and ZKPQ- we understood the relevance of investigate if the Rorschach can provide information about personality variables proposed by Cloninger and Zuckerman’s theoretical models.

There is only one precedent in similar studies. In this study, a previous version of the TCI was used. Significant correlations were found between all the dimensions and aspects of the test with at least two variables of the Rorschach (Fassino, Amianto, Levi, & Rovera, 2003).

Materials and Methods

The metodological design was a cross-sectional, correlational-causal (Hernández, Fernández, & Baptista, 2010).

Participants

The sample was composed of 80 Uruguayan residents older than 18 years old. Participants were

recruited through a random representative sampling by “quotas”. Ten census segments were raffle in the whole country, weighting the population in each segment. In each segment, two census tracts were raffle (approximately like blocks). In these tracts, the sampling was made taking 4 subjects in each block.

The ten census segments ruffled belong to the following towns: Carmelo, Castillos, Nueva Helvecia, Mercedes, Melo, Montevideo (4 segments) and Paysandú.

Ethical protocols were followed as established in the Uruguayan current law. The project was approved by the Ethics Committee of the School of Psychology of the Universidad de la República (Uruguay).

Instruments

The following instruments were applied to all participants:

- Ad-hoc sociodemographic questionnaire that assesses: gender, age, educational level, job, number of siblings, number of children, first-born age, place of residence (current, adolescence and childhood), psychological attention, couple, friends, physical activity.

- Socioeconomical Index, INSE (CINVE, 2012), that assesses: socioeconomical level.
- Symptom Assessment-45, SA-45 (Sandín, Valiente, Chorot, Santed, & Lostao, 2008), that assesses: somatization, obsessions and compulsions, interpersonal sensibility, depression, anxiety, hostility, phobic anxiety, paranoid ideation, psychoticism.
- Adaptation of the short version of Temperament and Character Inventory, TCI-140 (Gutiérrez-Zotes et al., 2004), that assesses: Harm Avoidance (HA), Novelty Seeking (NS), Reward Dependence (RD), Persistence (PS), Self-Directedness (SD), Cooperativeness (C), Self-Transcendence (ST), Maturity Index (MAD).
- Reviewed Short version of the NEO questionnaire, NEO-FFI (Costa & McCrae, 2008), that assesses: Neuroticism, Extraversion, Openness, Agreeability, Conscientiousness.
- Zuckerman-Kuhlman Personality Questionnaire transcultural short version, ZKPQ-50-CC (Póo, Ledesma, & López, 2013), that assesses: no socialized Impulsive-Sensation Seeking (Imp-SS), Neuroticism-Anxiety (N-Anx), Aggression Hostility (Agg-Hos), Activity (Act), Sociability (Sy).
- Dysexecutive Questionnaire, DEX-Sp (Pedrero-Pérez et al., 2009), that assesses: Inhibition, Intentionality,

Executive memory, Positive and Negative Affect.

- Frontal Assessment Battery, FAB (Dubois, Slachevsky, Litvan, & Pillon, 2000), that assesses: conceptualization, Cognitive flexibility, Motor programming, Inhibitory Control, Interference Resistance, Environmental autonomy.
- Mini-Mental State Examination-MMSE- (Folstein, Folstein, & McHugh, 1975), that assesses: cognitive impairment.

Rorschach test, the Comprehensive System was used (Exner, 2007), that assesses: variables related to personality and psychopathological symptoms.

Procedure

Participants were interviewed in their homes, in blocks ruffled, fulfilling the defined “quotas” regarding gender and four age groups (18-24, 25-30, 31-45, 45-60), in each census segment at until one empty “quota” was accepted. Written consent was signed, after that, the Ad-hoc sociodemographic questionnaire, the FAB, de MMSE and the Rorschach was applied. The rest of the questionnaires (SA-45, DEX-Sp, TCI-140, ZKPQ-50-CC) were left to the participant so he could fulfill

them later. The questionnaires were picked up later, at most 48 hours later than the test.

Exclusion criteria:

- Less than 27 in the MMSE
- Answer wrongly two or more control items in the TCI-140
- Rorschach protocols with less that 14 answer

11 protocols were excluded and were replaced for new participants in the same block.

Regarding the Rorschach test, the application was made in two different ways, one with the regular order of the inkblots (I to X), and other with a random order. The aim is to evaluate the “items independence”, postulation needed to apply a Item Response Theory analysis. The Rorschach tests were systematized using the 3.0 version of the “Rorschach Assistance Program” software. 126 Rorschach variables were taken, and subsequently all data collected with all the instruments were coded and analyzed using SPSS.

Results

Tables 1 and 2 show the details of the sample regarding gender and age, and education level, respectively.

Because most of the variables analyzed do not present a normal distribution, nonparametric tests were used.

The Rorschach was applied in two different ways, 42 subject received the standard application and 38 participants received a random version of the inkblots. In order to evaluate the “items Independence” postulation, using the Mann-Whitney U Test a contrast between both groups using the 126 studied variables was done. Significant difference were found (sig.<0,01) in the following variables: DQv/+ (sig=0,004), Hd (sig=0,006), XA% (sig=0,001) and X-% (sig=0,004).

Table 1. Descriptive statistics of age and gender.

Gender	Mean	N	S.D.	Min.	Max.
Female	41,69	45	18,587	18	86
Male	38,29	35	13,913	20	65
Total	40,2	80	16,692	18	86

Table 2. Descriptive statistics of education level.

Education level	Frequency	%
Without formal education	1	1,3
Primary incomplete	3	3,8
Primary complete	22	27,5
Secondary incomplete	26	32,5
Secondary complete	15	18,8
Tertiary incomplete	5	6,3
Tertiary complete	7	8,8
Post-graduation level	1	1,3
Total	80	100

As some of these variables are part of the Rorschach “special indexes”, the PTI, the HVI and the SCZI, the functioning of these variables will be specified for further analysis in the whole sample (n=80), and the sample with the standard application (n=42) in the variables that show a different functioning in the “total” and “standard” groups: DQv/+, Hd, XA%, X-%, PTI, HVI and SCZI.

The table 3 shows the significant correlations between Rorschach variables (without the special indexes) and the TCI-10 and ZKPQ-50-CC dimensions. As can be seen, statistically significant correlations are shown in at least six Rorschach variables with each of the personality dimensions assessed with both models. Most of the correlations are according to what is expected theoretically. In the case of Rorschach

Table 3. Correlations between Rorschach, TCI-140 and ZKPQ-50-CC variables

	Whole sample (N=80)	Rorschach “standard” sample (N=42)
TCI-NS	DQv/+ (-0,215, p 0,028), FC (0,250, p 0,013), C’F (0,227, p 0,021), YF (0,209, p 0,032), (H) (0,288, p 0,005) , An (0,216, p 0,027), BI (0,235, p 0,018), PER (0,234, p 0,018), SumT (0,196, p 0,041), P (0,200, p 0,037), An+Xy (0,198, p 0,039)	
TCI-HA	Zf (-0,215, p 0,027), ZSum (-0,212, p 0,030), ZEst (-0,215, p 0,027), W (-0,274, p 0,007) , A (0,233, p 0,019), (Ad) (-0,260, p 0,010), Fi (0,310, p 0,003) , Xy (-0,232, p 0,019), M- (-0,192, p 0,044), XA% (0,206, p 0,033), WDA% (0,2430, p 0,015), P (0,210, p 0,031), X+% (0,196, p 0,041), An+Xy (-0,203, p 0,035)	
TCI-RD	D (0,272, p 0,007) , DQv/+ (-0,308, p 0,003) , FQxo (0,238, p 0,017) , FQxsin (-0,235, p 0,018), C (-0,193, p 0,043), A (0,204, p 0,035), (Ad) (0,246, p 0,014), BI (-0,228, p 0,021), Sc (0,279, p 0,006) , AB (-0,234, p 0,018), EB (0,201, p 0,037), C puro (-0,221, p 0,025)	Hd (-.289, p .032)
TCI-PS	C’ (0,250, p 0,013), FT (0,190, p 0,046), Ad (0,240, p 0,016), An (0,234, p 0,018), CI (-0,263, p 0,009) , Fi (-0,215, p 0,028), AG (0,185, p 0,050), PHR (0,200, p 0,038), EB (0,200, p 0,038), EBPer (0,200, p 0,046), An+Xy (0,250, p 0,013)	
TCI-SD	m (0,230, p 0,020), (Ad) (0,186, p 0,050), BI (-0,272, p 0,007) , Fi (-0,250, p 0,013), Hh (0,186, p 0,049), PER (-0,228, p 0,021)	
TCI-C	D (0,217, p 0,026), DQv/+ (0,228, p 0,021), (Ad) (0,261, p 0,010), BI (-0,217, p 0,027), Sc (0,301, p 0,003) , R (0,197, p 0,040), EB (0,246, p 0,014), Fr+rF (-0,259, p 0,010)	XA% (.273, p .040)
TCI-ST	WD (0,221, p 0,025), DQo (0,241, 0,016), FQxo (0,282, p 0,006) , (H) (0,242, p 0,015), A (0,216, p 0,027), Fd (-0,238, p 0,017), SumT (0,196, p 0,041), P (0,242, p 0,015)	
TCI-MAD	m (0,237, p 0,017), (Ad) (0,239, p 0,016), BI (-0,285, p 0,005) , Hh (0,194, p 0,042), Sc (0,200, p 0,038), SUMm (0,196, p 0,041)	
Z Q P K - N - Anx.	Dd (0,290, p 0,005) , m (-0,230, p 0,020), FC’ (0,190, p 0,045), (2) (0,244, p 0,015), Ge (-0,236, p 0,018), Hh (-0,258, 0,010), Xy (-0,196, p 0,041), COP (0,253, p 0,012), SumC’ (0,249, p 0,013), Ma (0,213, p 0,029), 3r+2/R (0,263, p 0,009)	
Z K P Q - I - SS.	ZSum (0,253, p 0,012), DQ+ (0,190, p 0,045), DQv/+ (0,239, p 0,017), FQx+ (0,279, p 0,006) , C’F (0,247, p 0,013), (H) (0,207, p 0,032), Na (0,227, p 0,022), COP (0,241, p 0,016), MOR (-0,206, p 0,033), EA (0,204, 0,035), EBPer (0,235, p 0,024), XA% (0,191, p 0,045)	XA% (.290, p .031)
ZKPQ-Act.	Dd (-0,235, p 0,018), FQx+ (-0,195, p 0,041), FT (0,246, p 0,014), F (0,187, p 0,048), (A) (-0,283, p 0,006) , CI (-0,192, p 0,044), Ge (0,190, p 0,046), L (0,192, 0,044), es (-0,217, 0,026), Adjes (-0,212, p 0,030), SumFM (-0,289, p 0,005) , SumY (-0,214, p 0,028), Compl/R (-0,210, p 0,030), pasivo (-0,258, p 0,010), XA% (-0,186, p 0,050), WDA% (-0,210, p 0,031)	
ZKPQ-Soc.	m (0,197, p 0,040), (Ad) (0,195, p 0,042), An (0,187, p 0,048), Ge (0,204, p 0,035), Sc (0,208, p 0,032), C (0,206, p 0,034), An+Xy (0,188, p 0,048)	X-% (-.261, p .048)
Z K P Q - Agg.Hos.	W (0,251, p 0,012), D (-0,252, p 0,012), FQxsin (0,203, p 0,036), C’ (0,214, p 0,028), FY (-0,191, p 0,045), BI (0,250, p 0,013), Bt (-0,194, p 0,042), CI (-0,360, p 0,001) , R (-0,213, p 0,029), SumFM (-0,2170, p 0,027), SumY (-0,247, p 0,014), S- (-0,219, p 0,026)	
Between parenthesis Spearman correlation statistic and p		
Signification level lower than 0,01 in bold		

standard application less significant correlations are shown (probably due to the size of the sample). Three correlations present a different pattern from the whole sample in the TCI-RD, TCI-C and ZKPQ-Sy variables.

The table 4 shows the correlation between the Rorschach special indexes and the personality variables assessed in the whole sample. Eight from thirteen personality variables showed correlations with the at least one special index. All special indexes correlate with at least one of the personality variables. These correlations were in the expected direction from a theoretical point of view, except for DEPI with C, which correlation is inverse than the proposed theoretically: C, representing positive emotions such as joy or love, must correlates inversely with depression.

The table 5 shows the correlations between the same personality variables and the special indexes PTI, HVI and SCZI, in the standard sample. Three significant correlations are shown. The PTI does not show correlations with neither of the personality variables. Regarding the whole sample, less significant correlations are displayed. The significant correlation between HVI and TCI-ST arises and this correlation is not shown in the Table 4.

Table 4. Correlations between Rorschach special indexes, TCI-140 and ZKPQ-50-CC in whole sample.

		PTI	DEPI	CDI	S-CON	HVI	OBS	SCZI
TCI-NS	Corr.	0,094	-0,003	-0,199*	-0,197*	-0,056	-0,06	0,14
	Sig.	0,204	0,488	0,038	0,04	0,31	0,299	0,108
TCI-HA	Corr.	-0,247*	-0,072	-0,003	-0,135	-0,220*	-0,096	-0,195*
	Sig.	0,014	0,263	0,489	0,116	0,025	0,197	0,041
TCI-RD	Corr.	-0,252*	0,042	-0,065	-0,053	-0,253*	-0,062	-0,181
	Sig.	0,012	0,355	0,284	0,322	0,012	0,292	0,054
TCI-PS	Corr.	0,240*	-0,047	-0,054	0,03	0,118	0,068	0,11
	Sig.	0,016	0,339	0,316	0,394	0,149	0,275	0,165
TCI-SD	Corr.	-0,119	0,004	0,002	0,083	0,029	0,079	-0,127
	Sig.	0,146	0,485	0,492	0,231	0,399	0,243	0,131
TCI-C	Corr.	-0,151	0,195*	-0,098	-0,091	-0,169	0,024	-0,078
	Sig.	0,091	0,042	0,194	0,211	0,067	0,418	0,247
TCI-ST	Corr.	0,141	0,005	-0,104	-0,01	-0,175	-0,08	0,154
	Sig.	0,106	0,482	0,179	0,464	0,06	0,239	0,086
TCI-MAD	Corr.	-0,126	0,077	-0,014	0,041	-0,034	0,057	-0,099
	Sig.	0,132	0,248	0,451	0,359	0,381	0,309	0,192
ZNAN	Corr.	-0,109	-0,142	-0,135	-0,143	0,012	-0,035	0,001
	Sig.	0,168	0,104	0,116	0,103	0,457	0,379	0,497
ZISS	Corr.	-0,02	-0,134	-0,096	-0,136	0,129	0,146	-0,189*
	Sig.	0,43	0,119	0,199	0,115	0,127	0,098	0,046

Discussion

Regarding the alteration in the order of presentation of the Rorschach inkblots, only four variables of 126 showed significant difference between groups. This would support empirically the independence of items. However, the four variables that show significant difference are relevant clinically (Exner, 1969, 2007). In this regard, there could be an influence of the inkblots applied in the first place, this could be called “warming effect”, meaning, adaptation of the subject to a new task. The interaction of this variable with the “difficulty level” in each inkblot could explain that effect. Other studies will be needed in order to determine if this is the cause of that phenomenon, if it is other, or if it is related with the non-independence of the items in variable.

Regarding the correlations between Rorschach and the TCI-140 and ZKPQ-50-CC scales, it is highlighted that all studied personality variables present significant correlation regarding at least 6 Rorschach variables. This is similar to the only antecedent found, where only the TCI temperament dimensions were analyzed (Fassino et al., 2003). This is strong evidence

Continuation table 4.

		PTI	DEPI	CDI	S-CON	HVI	OBS	SCZI
ZACT	Corr.	0,101	0,012	-0,097	-0,073	-0,077	-0,091	0,139
	Sig.	0,186	0,459	0,197	0,261	0,249	0,212	0,109
ZSOC	Corr.	-0,076	0,091	-0,075	-0,006	-0,16	-0,079	-0,186*
	Sig.	0,25	0,21	0,253	0,48	0,078	0,244	0,049
ZAHO	Corr.	0,061	-0,008	-0,08	0,025	-0,058	-0,273**	0,05
	Sig.	0,297	0,473	0,241	0,413	0,303	0,007	0,329
PTI	Corr.		0,244*	0,270**	0,322**	0,259*	-0,06	0,713**
	Sig.		0,014	0,008	0,002	0,01	0,3	0
DEPI	Corr.	0,244*		0,186*	0,469**	0,159	-0,047	0,056
	Sig.	0,014		0,049	0	0,08	0,339	0,311
CDI	Corr.	0,270**	0,186*		0,445**	-0,058	-0,204*	0,177
	Sig.	0,008	0,049		0	0,305	0,035	0,058
SCON	Corr.	0,322**	0,469**	0,445**		0,286**	-0,087	0,230*
	Sig.	0,002	0	0		0,005	0,221	0,02
HVI	Corr.	0,259*	0,159	-0,058	0,286**		0,419**	0,152
	Sig.	0,01	0,08	0,305	0,005		0	0,089
OBS	Corr.	-0,06	-0,047	-0,204*	-0,087	0,419**		-0,183
	Sig.	0,3	0,339	0,035	0,221	0		0,052
SCZI	Corr.	0,713**	0,056	0,177	0,230*	0,152	-0,183	
	Sig.	0	0,311	0,058	0,02	0,089	0,052	
Signification level lower than 0,05 in bold								
** Significant unilateral correlation at 0,01 level								
* Significant unilateral correlation at 0,05 level								

that the Rorschach can evaluate those personality dimensions. However, the dimension that shows less correlation with Rorschach is Self-directedness (SD), a highly relevant variable in the model of Cloninger to assess the presence or absence of mental illness (Svrakic & Cloninger, 2010).

The first remarkable point is the presence of a large number of significant correlations, in most of the cases, according to the theory. An analysis of all correlations would exceed the scopes of a scientific paper.

Regarding the correlations that might be supposed a priori from the theoretical point of view, the following observations could be highlighted:

- TCI-NS: C does not show as expected, but DQv/+, FC and BI do.
- TCI- HA: there are no significant correlations with C´ nor with MOR, though there is a significant correlations with Zf, ZSum, W, Fi, M- and An+Xy
- TCI-RD: T does no show, but there is a correlation with A, BI, AB, EB and C
- TCI-PS: there is a correlations with Fi, , PHR, EB and EBPer
- TCI-SD: there are no correlations with formal quality,

developmental quality, COP, M or with other expected items, though there is a correlation with BI, Fi and PER

- TCI-C: COP is not present, though there is a correlation with DQv/+, BI, R, EB and Fr+rF
- TCI-MAD: expected items are not present, as TCI-SD. Again, BI presents a negative correlation
- ZKPQ-N.Anx: there are significant correlations with Dd, m, FC´, (2), SumC´ and 3r+2/R
- ZKPQ-Imp.SS.: Neither C nor CF are present, though ZSum, DQv/+, COP, MOR and EA are.
- ZKPQ-Act.: there are no significant correlations with “active” movement, but there is a negative correlation with “passive” movement, also with Dd and SumFM
- ZKPQ-Sy: does not correlate with H, M or COP as it was expected, though there is a correlation with C
- ZKPQ-Agg-Hos: correlates with D, FQsin, FY, SumFM, SumY, S- and C´ as it was expected. However, there is no correlation with AG
- Regarding the special indexes, few correlations are present although in the expected direction. Some of the significant correlations are missing, for example DEPI, S-Con and OBS with TCI-HA, OBS with TCI-P. Since special indexes are related with psychopathological conditions, it is remarkable that neither of them correlate

Table 5. Correlations between PTI, HVI, SCZI and: TCI-140 and ZKPQ-50-CC in standard sample

		PTI	HVI	SCZI
TCI-NS	Corr.	0,21	-0,101	0,248
	Sig.	0,091	0,261	0,056
TCI-HA	Corr.	-0,09	-0,258*	-0,01
	Sig.	0,286	0,049	0,475
TCI-RD	Corr.	-0,16	-0,196	-0,186
	Sig.	0,155	0,107	0,119
TCI-PS	Corr.	0,167	-0,05	0,097
	Sig.	0,145	0,376	0,271
TCI-SD	Corr.	-0,158	0,029	-0,185
	Sig.	0,159	0,428	0,12
TCI-C	Corr.	-0,202	-0,128	-0,189
	Sig.	0,1	0,209	0,115
TCI-ST	Corr.	0,083	-0,328*	0,145
	Sig.	0,301	0,017	0,179
TCI-MAD	Corr.	-0,176	-0,017	-0,185
	Sig.	0,132	0,458	0,121
ZKAN	Corr.	0,007	-0,009	0,062
	Sig.	0,483	0,477	0,348
ZISS	Corr.	-0,189	0,197	-0,22
	Sig.	0,115	0,106	0,08
ZACT	Corr.	-0,118	-0,11	-0,032
	Sig.	0,228	0,244	0,421
ZSOC	Corr.	-0,15	-0,017	-0,308*
	Sig.	0,172	0,458	0,023
ZAHO	Corr.	-0,016	-0,177	0,007
	Sig.	0,459	0,131	0,481
PTI	Corr.		0,221	0,789**
	Sig.		0,08	0
HVI	Corr.	0,221		0,225
	Sig.	0,08		0,076
SCZI	Corr.	0,789**	0,225	
	Sig.	0	0,076	
Signification level lower than 0,05 in bold				
** Significantive unilateral correlation at 0,01 level				
* Significantive unilateral correlation at 0,05 level				

with TCI-SD and TCI-MAD. The ZKPQ showed few correlations with those special indexes, though in the expected direction.

Conclusions

In the introduction we mentioned some elements of the current clinical theoretical-technical background that we believe relevant. We understand that the Rorschach could be a useful tool to these new challenges, but more research should follow regarding its psychometric properties in order to achieve this goal. This study proves that Rorschach possesses relevant information regarding the main dimensional models of personality. Nevertheless, it is highlighted that many of the correlations expected theoretically did not have a significant result, and some that were not expected did. This imposes the need of questioning those assumptions, with empirical support, especially with the need of re-design the special indexes (that were not efficient in detecting what they were supposed to).

The teaching of Rorschach technique has been diagrammed under different theoretical models, in the beginning closer to psychodynamic theories,

later to cognitive models (Exner, 1969, 2007). This strong association with the psychodynamic theories has generated a estrangement with other theoretical positions and other sub-discipline contributions. Exner is an author that has understood this fact and has approached the Rorschach to more rigorous psychometric and empirical approaches. Likewise, the empirical basis for many of the elements used in Rorschach interpretation is often weak, in others, arguably (Hunsley & Michael, 1999).

In clinical practice, the use of Rorschach is highly spread in several contexts and areas. The theoretical model used to analyze the technique is hard to engage with other paradigms commonly used in psychology. For example, the Comprehensive System does not have a clear relation with diagnostic models such as the DSM or CIE, and is not subordinated to theoretical models of personality such the Big Five or others. This complicates the teaching and application of the Rorschach in clinical settings.

The present paper exposes a result that empirically supports the relation of Rorschach with two recent personality theories. We understand that this could open a research and development line that allows

the integration of Rorschach with other diagnostic “batteries”, or the evaluation of personality models through the test.

Despite having found numerous correlations between the personality dimensions evaluated and Rorschach variables, the results were not in the same line as proposed by Rorschach theory, with few modifications, for almost 100 years. We understand that the challenges for the Rorschach in the following years could be extrapolated to several areas. In the academic area, the challenge is re-design a centenary test based in the advance of areas related to Psychology such as: statistic, neuroscience, psychobiological models of personality, psychometric, psychopathology, etc. In the university area, particularly related to teaching, the challenges should be directed towards the advances, inquiries and reformulations regarding the test. Teaching of the test is often ankylosed and barricaded with dubious empirical support. It is supported empirically that the test is reliable and a useful assess tool. However, the spread number and kind of variables of the test, and the complexity and diversity of the analysis, makes the conclusions drawn exceed in many cases what could be supported by some scientific rigor. The Rorschach

has trapped and fascinated countless generations of students, professionals and scientists since its creation. Part of his “charm” lies in the mystery of the relationship between these images on inkblots, with the “hidden features” of personality that it discovers. Far from the esoteric and pseudoscience, it provides relevant and quality information regarding psychological variables. We understand that teaching and professional practice based on evidence, and a reformulation of the test taking advantage of the advances in psychological sciences in the last decades, let augur a prosperous future for the Rorschach.

On the other side, we also understand that this line of research can be very interesting to other psychological theories, in this case psychobiological model of personality. Regarding these two theories, as many others, almost all the instruments are self-reported questionnaires. These techniques have been broadly accepted by its simplicity and psychometric properties. However, it is also widely demonstrated the vulnerability to biases such as social desirability or fraud. Having other instruments that assess the same variables or constructs is of vital importance for the clinical applicability of these theories.

All these findings should be analyzed in the light of some important limitations of this study. The type of

sample collection involves a great representativeness. However, aspects such as the physical space where the Rorschach is applied, and the previous link between applicator and interviewed (about 10 minutes) make it difficult to extract information of better quality. Given the large number of variables studied, and the sample size, it is possible that some of the correlations found are spurious, which is a factor to be taken into account. Finally, it would have been desirable to obtain a more balanced sample based on gender.

Disclosure

The authors state having no conflict of interest whatsoever regarding this article.

Received: 29/08/2015

Accepted: 23/11/2015

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