

Rorschach test in murderers: A systematic review of the literature 1946-2021 II – Descriptive, not controlled group studies

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Abstract

A total of 91 studies on Rorschach test in murderers from 1946 to 2021, written in English (62), French (13), Italian (12) or other languages (N = 4; Portuguese, Spanish and German) were reviewed, searched from the main databases (PubMed, Medline Complete, Embase, PsycINFO, PsycNET, PEPWeb, Cochrane, Gallica and Perseus) and other relevant sources (Google scholar; books and journals in the Rorschach field; Rorschach bibliographies; Buros MMY Mental Measurement Yearbooks), as well as from researcher networks (academia.edu, researchgate.net) and from the list of references of identified articles. Literature searching, study selection, screening and data extraction were carried out independently and concordantly by two authors. All the papers containing data on the Rorschach test in murderers were included, but only the contributions whose full text pdf was available were considered. Five types of studies were identified: 1) Literature reviews (N = 4); 2) Single case studies (N = 31); 3) Descriptive studies on murderer samples without controls (N = 20) or compared with normative data (N = 2); 4) Case-Control groups comparative studies (N = 28); 5) Miscellanea (N = 6). All the studies have been summarized in detail, so that they almost always replace a direct reading. The present paper concerns descriptive studies on murderer samples without controls (N = 20) or compared with normative data (N = 2). The results are extensively discussed, focusing on forensic implications and indications for future research.

Keywords: homicide, murder, murderer, rorschach test

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Rorschach test in murderers: A systematic review of the literature 1946-2021 II – Descriptive, not controlled group studies

Introduction

The psychological and psychiatric assessment of authors of homicide is of paramount relevance in the forensic practice, in order to address issues of competence to stand trial, mental state at the time of offense and current dangerousness, according to the principles of EBMPA (Evidence Based Multimethod Psychological Assessment) (Erard & Evans, 2017; Giromini & Zennaro, 2019). In this field, the Rorschach test, blowing out its first hundred candles since the publication of Psychodiagnostic (1921, 1942, 1981), the masterpiece of Herman Rorschach (1884-1922), confirmed itself until to-day as the longest-lived and one of the most used psychodiagnostic tests, both in clinical and forensic psychological and psychiatric practice (Hinselroth & Strycker, 2004; Archer, Buffington-Vollum, Vauter Stredny, & Handel, 2006; De Fidio e Grattagliano, 2007; Archer & Wheeler, 2013; Neal & Grisso, 2014; Giromini & Zennaro, 2019; Giromini et al., 2022; Convertini et al., 2020; Grattagliano et al 2019a; Grattagliano et al 2019b; Convertini et al, 2020). In addition, in the last decade, despite some recent criticism (Areh, Verkanpt, & Allan, 2021), the outstanding meta-analysis by Mihura, Meyer, Dumitrascu & Bombel (2013), completed the work of refoundation of the psychometric bases of the Rorschach, convincing the most bitter opponents of the first hour (Wood, Garb, Nezworski, Lilienfeld & Duke, 2015) and almost putting an end to the so-called 'Rorschach controversy' (Zizolfi, 2016); as a consequence, the Rorschach test is not challenged at unusually high rates, when compared to other psychological tests, in the United States and in selected European courts (Viglione, et al., 2022). It is therefore of the greatest interest to analyze the literature on the Rorschach test in murderers, along a systematic all-inclusive comprehensive review, with the aid of electronic databases, which allows to identify much more studies (N = 91) than previous reviews (Cimino, 2018a; Ferracuti, 1961; Frank, 1994; Gambineri, 2004a). The following paper refers expressly to our previous contribution in this issue (Zizolfi, et al., 2023); for further details, the first work is an indispensable reading and a pivotal element also as regards the aims, the rationale and the methods used. Of the five types of papers identified, already mentioned in the first paper, the first contribution presented single case studies (10 without Rorschach protocol and 21 reporting Rorschach record) and miscellaneous studies (N = 6). The present second contribution concerns descriptive studies without controls, including murderer samples without controls (N = 20) or compared with normative data (N = 2).

Methods

In order to obtain a comprehensive and inclusive literature review, all articles mentioning the Rorschach test in murderers were included without any language filter: search strategy, eligibility and exclusion criteria, and data extraction are fully detailed in our first contribution (Zizolfi, S., et al., 2023). Briefly, only full text contributions were considered; two reviewers extracted the different data independently of each other; if the systematic review process lacked consensus between the two, they discussed between them to solve the disagreement, or, otherwise, a third reviewer resolved it. 103 papers were identified, 91 articles entered the study¹: paper by Ermentini (1990) and eleven papers presenting Rorschach data from mixed criminals (not only murderers) were excluded (Dorr & Viani, 2006; Franks, Sreenivasan, Spray & Kirkish, 2009; Keltikangas-Jarvinen, 1978; Norbech, Gronnerod, & Hartmann, 2016; Parrot & Briguet-Lamarre, 1965; Rader, 1957; Schachter, 1975; Timsit & Bastin, 1987, Walters, 1953; Weizmann-Henelius, 2005 and 2006)².

Results

This second section of our review concerns:

- a) Descriptive studies on murderer samples without controls (N = 20), divided into 2 subgroups:
 - Descriptive studies on adolescent murderers (N = 4);
 - Descriptive studies on adult murderers (N = 16);
- b) Descriptive studies on murderer samples compared with normative data (N = 2).

Descriptive studies in adolescent murderers (N = 4)

From 1949 to 1975, Schachter, médecin chef of the Comité de l'Enfance Déficiente de Marseille and court expert of the Tribunal des Mineurs de Marseille, published a series of contributions on Rorschach test in adolescent murderers examined for forensic purposes, without specifying the method of test administration.

Schachter & Cotte (1949) reported historical and clinical data, and some preliminary Rorschach findings of the first sample of 9 adolescent murderers (8 males, 1 female; 15-18 years old).

The following paper (Schachter & Cotte, 1963) in-

- 1 A pdf copy of each analyzed article is available upon request to the first author (S.Z.), e-mail: zizolfi@iol.it
- 2 A pdf copy of each excluded article is available too, upon request to the first author (S.Z.), e-mail: zizolfi@iol.it

cludes two more cases (1 male parricide, 15 years old; 1 female, 16 years old) and reports detailed Rorschach data for each of 11 records. Rorschach variables ranged as follows: R: 9-41 (9-16 in 5 cases, 24-28 in 3 cases, 33-41 in 3 cases); G: 2-7; D: 4-26; Dd: 0-11 (zero in 4 cases); Dbl: only 1 in 3 cases, zero in others; F+ %: 60-89 (60-74 in 6 cases); K: 0-4 (zero in 7 cases); FC: 0-5 (zero in 5 cases, 1 in 2 cases, 2 in 2 cases); CF: 0-3 (zero in 7 cases; 1 in 2 cases); C: 0-4 (zero in 7 cases, 1 in 2 cases); H%: 0-26 (zero in 5 cases; 3-10 in 3 cases); V%: 7-44 (7-18 in 7 cases). Three adolescents rejected one card, one subject rejected 4 cards. Only 3 subjects gave anatomical contents (4%, 6%, 30%); only 2 gave Blood responses (12%, 16%).

Schachter's last contribution (1975) mixed Rorschach data from adolescent convicted for murder (N = 7) and attempted murder (N = 8) and therefore it was excluded from the present review: anyway, it does not add any significant additional information.

Durand de Bousingen (1971) summarized clinical and testing (Rorschach and T.A.T.) results, without specifying methods, in a group of 5 adolescents, 3 males and 2 females, aged 14, 15, 16 and 16 years old, with normal range IQ, 4 out of 5 without any psychiatric history, who killed respectively a 4-year-old child during a fight, an 8-year-old child, in an attempt of homosexual intercourse, her newborn (abused by her uncle), his grandfather, her newborn. No extensive quantitative Rorschach data were presented. Rorschach records depicted an overall 'constricted personality', with low total R (mean = 15, perhaps due to the forensic setting), absent M responses (indicating poor ability to internalize problems), lack of coloured responses in 4 out of 5 cases (no 'impulsive structure' of personality), no signs of anxiety, very few or absent H responses (suggesting reduced interpersonal contacts), the rejection of the IV table (so called 'father table') in 4 out of 5 cases, while the last female gave the following two responses: "The body of an animal, without its head; a block of ice". The Rorschach picture was very stable in the 15-year-old male, undergoing previous psychiatric hospitalizations for conduct disorders, who was tested three times, when 11, 13 and 15 years old.

From a psychoanalytic point of view, McCarthy (1978) studied history, symptoms, psychopathology, psychological and psychiatric evaluation and psychotherapeutic treatment of ten inpatient adolescents (9 males and 1 female, aged 12-16) who had committed murder; nine of the ten had been deserted by one or both parents; nine of the ten had histories of transient psychotic schizophrenic episodes and extensive histories of fighting, antisocial behavior, and in several cases, fire-setting. Their victims ranged in age from younger children to peers, adults who were strangers or neighbors; in one case, a youngster murdered his mother. Rorschach test contained evidence of both episodic discontrol and dehumanization: "...several youngsters repeatedly saw statues in human-like movement instead of popular human-movement responses".

Descriptive studies in adult murderers (N = 16)

Schneider (1955) reported some Rorschach quantitative data (mean, range), without specifying the method, in

18 murderers, for the following variables: R (37.8, 10-114), G (6.3; 2-16), D (18.1; 5-44), Dd (8.1; 0-35), Dim (Space) (3.3; 0-23), F (33; 7-85), F+ % (79), F- (7.2; 1-38), K (1.7; 0-8), FC (1.1; 0-4), CF (1.7; 0-6), C (0.3; 0-4), FClob (2.8; 0-5), A% (52.0), H% (19.7), Anat% (3.0), Sex% (1.7). According to the Author's conclusion, the Rorschach records of murderers appeared to be 'normal', even if he notes that Space responses, as well as Anat% and Sex% ones are higher than usual, and that CF+C are higher than FC. Anyway, the lack of sociodemographic, clinical and criminological data, and the excessive variability of total R (10-114), quite invalidated the study.

Paoletta (1958), and Romano & Paoletta (1958, 1958a) studied 20 male murderers in prison, administering the Rorschach test (not specified method), the T.A.T and the Wechsler Bellevue scale. They distinguished 'hyperthymic personalities', with Rorschach signs of impulsivity and oppositivity (high whole and space responses, high C; low banal/popular responses), and 'cool personalities', without particular Rorschach features.

Satten, Menninger, Rosen & Mayman (1960) administered Rorschach and TAT in four cases of young men (20-43 years old) convicted of bizarre, apparently senseless and without motive murders, as part of an appeal process. "All had been examined by psychiatrists prior to their trials, and found to be 'without psychosis' and 'sane'. Three of the 4 were under death sentence, and one of them was serving a long prison term. Further psychiatric investigation was requested because someone in each of these cases, either one's lawyer, relative, or friend, was dissatisfied with the previously given psychiatric explanations, and asked: 'How can a person, as sane as this man seems to be, commit an act as crazy as the one he was convicted of?'. "For the most part, the murderers themselves were puzzled as to why they killed their victims. Attempts to reconstruct a rational motive were unsuccessful. In each case, there was no gain to the murderer by killing the victim, nor was there any accompanying crime. The victims were relatively unknown to the murderers, and the method of the murder was haphazard and impromptu. In no case did the murderer use a conventional weapon, but killed with his bare hands or whatever could immediately be pressed into use. In all instances, however, the murder was unnecessarily violent, and sometimes bizarre, and there was evidence that the assaults on the bodies continued until long after the death of the victims". In this paper, historical findings, examinational data (including clinical observations and EEG findings) and the role of unconscious motivation are fully described and detailed. Rorschach results are briefly summarized as below. Brief, constricted Rorschach records were the rule: "Certainly the usual role of thinking (as a delay of, and attenuated substitute for, action) was conspicuously absent in these cases". In general, "...the test picture for all of the men added up to an 'all or none' pattern of functioning. Inhibition of action required great amounts of psychic energy and lacked flexibility; once controls began to weaken, the men were almost completely overwhelmed by affect, morbid fantasy, and a proneness to immediate unreflective action. The test pictures were uniformly consistent with indications of a severe ego deficiency which permits impulse to flow too directly into action and not be easily shunted into thinking or verbalization". In addition, there was a blurring of the boundaries between fantasy and reality, and there were transient feelings of depersonalization

both in previous life experience and in murder episode, as well as at the Rorschach: the fourth murderer, for example, in response to a Rorschach card "...began to describe not only the blot in front of him, but also a confused mixture of dreams, memories and waking fantasies". In all these individuals. "...the tolerance for affect and anxiety was extremely limited and all showed marked disturbance in dealing with color on the Rorschach".

Perdue (1961, 1964) repeatedly studied Rorschach test in murderers, scored according to Beck (1949, 1950, 1952) and Piotrowski (1957). In the first paper (Perdue, 1961), he examined the records obtained over a period of one to two years in 47 men (mean age: 37.9 years; 34% black, 66% white; IQ mean, from the Otis Quick-Scoring Test of Mental Ability and the Revised Beta Examination: 84.4), convicted of first-degree murder who are serving life terms at the Virginia State penitentiary: other 6 subjects, considered in his unpublished master's thesis (Perdue, 1960), were excluded because serving lesser terms for murder. 42% had been convicted of killing either blood relatives (parricide) or their wives (uxoricide); the remainder had been convicted of killing persons who were neither 'emotionally' nor blood kin; victims ranged from one to three people. Length of time served on sentence was not controlled, as it has been indicated that length of confinement tends to have little effect on Rorschach responses (Loreto & Ferraz, 1952); at the time of testing, the inmates had been in prison from less than a month to five years. The Rorschach records included those who were making good adjustments as well as those who were trying

to get used to the newness of confinement and were still bewildered. All, however, appeared to have one major goal in common: working for eventual release through pardon or parole consideration. Since 1960, the Virginia Prison System's Psychology Department has adopted the policy of giving every inmate a battery of projective techniques, including the Rorschach, T.A.T. and H.T.P.: all of the Rorschach records for the study came as a result of this practice. Once the procedure was explained to each inmate, with the idea that the results might help us understand him better, cooperation was excellent: perhaps they enjoyed being 'bugged' by the 'headshrinker'. In the second paper, Perdue (1964) added 53 additional cases, as a result of his daily work in the prison, along the same procedure, thus giving a total of 100 protocols from male murderers, aged 15 to 57 (mean: 33.3; the 15-year-old had been given three life sentences after being convicted of killing three people), 43% black and 57% white, with a mean IQ of 85.3 (range: 60 to 112), 30% convicted of killing their blood relative (parricide), 30% of killing their wives (uxoricide), the remainder convicted of killing persons of no kin. In this second study, only 75% of the murderers were serving life terms, while the remainder had been sentences of 10 to 99 years; several inmates had been given the death penalty, which later was commuted to a life term. In both studies, Rorschach factors, found to be very infrequent, were not considered. Mean and SD values for primary Rorschach factors in the 1st and the 2nd study were tabulated as follows, showing no significant difference between the two samples (tab. n. 1):

Table 1 – Rorschach responses in 100 murderers

Rorschach Factors (*)	GROUP A (N = 47) (Perdue, 1961)		GROUP B (N = 53) (Perdue, 1964)	
	Mean	SD	Mean	SD
Total R	15.37	3.90	17.40	7.00
W	6.27	2.60	5.71	2.70
D	8.40	0.43	10.33	5.09
Dd	0.60	1.40	1.13	1.21
S	1.06	1.20	1.23	1.50
M	0.75	0.91	0.73	1.22
FM	1.09	0.94	1.18	1.40
m	0.69	1.20	0.35	0.86
F	1.25	1.20	3.20	3.10
F+	8.15	2.60	7.44	3.40
F-	1.25	1.20	1.04	3.90
FC	1.64	1.40	1.58	1.62
CF	0.97	1.00	1.24	1.90
C	0.13	0.45	0.30	0.68
SumC	2.52	2.70	2.43	4.10
FV	0.50	0.66	0.84	1.60
FY	0.28	0.83	0.70	1.10
H	1.36	1.30	1.29	1.70
Hd	0.60	0.92	1.90	1.58
A	7.34	2.10	7.15	2.70
Ad	1.89	1.80	1.91	6.70
P	4.92	1.50	4.19	2.20
R (plates I-VII)	11.49	3.00	10.41	4.40
R (plates VIII-X)	5.66	2.90	6.56	3.30
T/ 1 st R (sec.)	12.97	2.50	11.80	4.90

(**): according to Beck (1949, 1950, 1952) and Piotrowski (1957)

In the first paper, Perdue (1961) listed some percentages and various ratios to be worked into the personality description, roughly following the four basic part pattern set by Mons (1950) (basic personality, mental activity, emotional life, contents): W% (40), D% (53), Dd% (6), F% (62), F+% (89), A% (60), H% (13), P% (33), M : SumC (1:3), W:M (6:1), M:FM (1:1), (H+A):(Hd+Ad) (8:3), Affective Ratio (50%). In the second paper, Perdue (1964) noted that personality factors seemed very similar those ones of the previous study, and enhanced the following Rorschach variables: the high W to M ratio (6:1; NV: 3:1), suggesting "...that a lowered sense of personal adequacy may be present..." and "...that great amount of ambition could be in evidence, but it tends to outstrip true creative ability, which hints at strong feelings of inferiority and personal inadequacy. Such feelings can cause limited tension tolerance, with limited patience not only with others but with the self as well"; the low Dd%, suggesting "...a practical-minded type of person who may tend to ignore the finer points of life"; the presence of S Space responses "...often indicative of opposition"; the high F%, indicating a constriction and rigidity of personality, implying "...that much control is being exercised"; the high F+%, implying "...the presence of both anxiety and emotional constriction"; the limited color response "...thought to further reinforce this emotional constriction; perhaps experience with emotions in the past has brought about fear of them"; the low M, indicating "...a low fantasy activity" and "...a lack of inner wish activity to control the emotions when they arise"; the low M to SumC ratio, suggesting "...an uncreative type of person of rather unstable emotionality who may be easily excitable"; the low FC to CF ratio, confirming self-centered attitudes and that "...a strong attempt is being made to over-compensate for the feelings of inferiority by adopting an egotistical or highly sensitive self-centered outlook"; the very low M to FM (1:1; NV: 3:1) ratio, with concomitant m, indicating "...the presence of primitive impulses... (that) seem about equal in strength to the maturity that has the job of controlling them"; the high A%, implying "...a limited imagination, unproductiveness and stereotypy in the thinking; a mentality that seldom rises above the common lines of existence"; the low H%, suggesting "...a lack of faith in others" and "...a fear of people and their intentions, thus hinting at undue sensitivity toward the environment"; the high P% and the lack of original responses, confirming "...a rather stereotyped mentality who seems to be rarely independent in his thinking. He seems content to adopt the ideas of others and displays little or no imagination in his thinking or planning"; the high F+% (construction of reality), the high A% (adaptive thinking) with the high P% (conformity) "...appear to indicate that subject is trying to protect himself against something – perhaps anxiety – within the personality structure". In summary, Rorschach pattern, according to the Author, suggests "...a person who appears to be of dull-normal intelligence, stereotyped in his thinking, and who may be trying extremely hard to conform. Perhaps subject has had enough prior experience with his emotions to know that he must try to control them. It is as if he is stepping cautiously in an area where he has learned, from bitter past

experience, that trouble may lie. Such caution appears to be causing the constriction of emotional life that prevents any wandering off the beaten path. Then again, it must be taken into consideration that subject is trying to conform, being aware that his prison record or adjustment has a great bearing on his future release to society. It is thought that he is hiding his emotions and that inside exists what Banay (1952) has termed 'an emotional smoldering'. The lack of inner creativity to serve as a check could mean that often the road is open to the primitive forces of the subconscious (Banay, 1952). The depressive characteristics, which were in evidence throughout the personality pattern, could add weight to Wilson's (1951) assumption that prison has an extremely depressing effect". Anyway, the Author is perfectly aware that "A study of this nature raises, among many questions, the idea of comparisons with similar research in other...prisons". According his conclusive remarks, his results "...add strong evidence to Banay (1952, p. 29) statement: 'A scientific understanding and evaluation of the destruction of one human being by another, varies so greatly that true understanding can only be achieved in individual terms and reactions'".

Anastasiadis (1965) administered the Rorschach (not specified method) in 67 murderers not sentenced to death for circumstances mitigating sentence, undergoing long-term imprisonment in Istanbul, aged 19-58 (mean: 31) at the time of testing, aged 15-55 (mean: 26) at the time of crime. Most of them were illiterate; the test of Porteus was administered in order to exclude subjects with mental retardation (11% had an IQ between 50 and 69; 8% had an IQ between 70 and 79). No one had a psychiatric history or showed psychiatric symptoms. Rorschach data differ from normal value (not cited) for low number of R, low G%, low F+%, high Clob, constricted TVI, higher sex responses, suggesting a normal intelligence, poor imagination, rigid thinking, impoverished affect and Ego functions, sexual perseverations. Anyway, these features are not specific, and are not suitable to identify a specific 'criminal personality'.

Kahn (1965), in search for specific characteristics of murderers by means of techniques of factorial analysis, examined a sample of 43 individuals, consecutively admitted during a period of seven years to a University Psychiatric Hospital with the plea of insanity to the charge of murder, and each evaluated for a 30-day period, both psychiatrically and through a battery of psychological test. Psychiatric examinations and interviews allowed to obtain a) the mental status of the patient; b) the patient's description of the crime and the events that led up to it; c) the personal and social history obtained from the patient, d) a formulation of the patient's personality dynamics, and e) diagnosis and evaluation of legal sanity. All the tests were administered by the same examiner. The Rorschach were scored according to Holt & Havel (1960) primary process system, and verbal, performance and full-scale WAIS IQs were used. Twenty items of data from the medical chart were included, representing five areas: a) past adjustment, b) social class, c) demography, d) crime, and e) evaluation. Thirty-nine items in all, from the Rorschach, WAIS, and medical chart were then factors analyzed by a computer program which utilized a principal component method

with a Varimax rotation to approximate orthogonal simple structure. Only factors with loadings above .30 were rotated. Fifteen factors emerged, accounting for 91% of the variance. Only the first five, which account for about 62% of total variance, were discussed. Factor III (10.61% of total variance) was related to occupational level, social class, number of prison terms, school adjustment and educational level. Factor IV (6.83% of total variance) was associated to number of marriages, marital status and age. The remaining factors are more related to testing results. Factor I (24.26% of total variance) is bipolar, and might well be subtitled a sane-insane or a primary process-secondary process factor, taking into account Total Formal Primary Process (Perceptual or Logical Distortion), Primitive (Level 1) Aggressive Drive, Primitive (Level 1) Libidinal Drive, Defense Demand, Defense Effectiveness, Form-level Accuracy, and Sane. Factor II (14.50% of total variance) is clearly an intelligence factor, or more precisely a factor concerned with measured intellectual functioning (Full-scale IQ, Verbal IQ, Performance IQ), associated with Educational level and with modulated expression of primary process (Level 2 Primary Process). Finally, Factor V (5.76% of total variance) is clearly a unitary factor representing the primary process expression of aggressive drive, associated with compelling need for defence, taking into account four Rorschach content variables: Aggression Level II, Total Aggression, Total Content, Defense Demand.

Kahn (1967) re-scored the same 43 Rorschach records according to Mayman's (1964) seven category scoring system of Rorschach form level, in order to evaluate reality adherence: a reality adherence score for each murderer's protocol was determined by dividing the total of the murderer's form level score, weighted according to Holt (1962) and Holt & Havel (1960), by the number of responses in his protocol. Reality adherence score contributes importantly to a factor analysis dimension of reality functioning (Factor I of the previous study), correlated significantly with judgment of legal sanity ($r = +.492$, $p < 0.01$) and with intelligence test (WAIS) variables (Full Scale IQ: $r = 0.352$, $p < 0.05$; Performance IQ: $r = .400$, $p < 0.01$), showed statistically significant negative correlations ($p < 0.01$) with Holt's Rorschach Primary Process scores (Libido I: $r = -.569$; Aggression I: $r = -.548$; Formal I: $r = -.586$; Formal II: $r = -.446$; Total Formal: $r = -.553$).

Four years later, the paper by Kahn (1971) is an extensive monography (86 pagg.), illustrating in more details the sample characteristics, the methods and the results obtained in the same group of 43 murderers. The paper provides a careful descriptive report for all the characteristics taken into account: age (mean. 30.88); sex differences (41 males, 2 females); religion (70% Protestant, 19% Roman Catholic, 2% Jewish, 9% - two subjects - no religious affiliation); ethnic-race (81% Caucasian, 14% Mexican-American); marital status (40% married, 37% never married, 23% broken marriage at the time of the murder); number of marriages (23% with 2 or more marriages); social class level (according to Hollingshead's five level classification, based on a weighting of education and

occupation, while level 5 is the lowest status) (65% level 5, 30% level 4); occupational level (according to Hollingshead's seven level classification, while level 7 is the lowest state; 51% level 7; mean level: 6.05); occupational stability (42% very unstable, 31% very stable); education (years of education: mean = 8.5, SD = 3.26); number of siblings (mean: 3.84; SD: 2.97); sibling position (44% first born, 22% second born); school adjustment (51% poor; 7% good); broken home (47% came from home broken by divorce, separations, desertions, death, and other reasons); number of previous arrests (40% : none; 60% : multiple previous arrest, with a mean of 1.86 and a SD of 1.95); number of prison terms (67%: none; 33%: one or more); nature of previous crime (35%: none; 21%: minor; 28% burglary; 11% major: 1 arson, 3 assault, 1 homicide); victims (39% family members - 23% spouse -, 33% strangers); weapons (54% firearms, 19% blunt instrument, 12% knife, 9% hands); drinking at the time of the murder (47%, but only a few had been drinking heavily); psychiatric diagnosis (17% absent, 32% sociopathy, 19% other character disorder, 14% psychosis, 9% mental deficiency, 5% psychoneurosis, 5% chronic brain syndrome); medico-legal judgment (35% legally insane). According to Holt's Rorschach scoring system, based on psychoanalytic distinction between primary and secondary process, each Rorschach response is scored for the presence, type and degree of drive (libidinal or aggressive) and for the presence, type and degree of formal perceptual or logical distortions. Only 39 variables were considered, since the factor-analysis procedure made it necessary to limit the number of variables: a) *past adjustment* (N = 4): broken home, number of prison terms, degree of violence of previous crimes, school adjustment; b) *social class* (N = 6): social class (Hollingshead's five categories), occupational (Hollingshead's seven level classification), education, race, number of siblings, birth-order position; c) *demography* (N = 3): age, sex, number of marriages; d) *the murder* (N = 3): relationship to victim, weapon, number of persons killed; e) *evaluation* (N = 2): legally sane, legally insane; f) *intelligence* (N = 4): full scale IQ, verbal IQ, performance IQ, performance-verbal IQ; g) *Rorschach Primary Process* (according to Holt, 1962 and to Holt & Havel, 1960) (N = 17): total content, libido level 1, libido level 2, total libido, aggression level 1, aggression level 2, total aggression, formal level 1, formal level 2, total formal, grand total primary process, total level 1, total level 2, form level/R (Mayman, 1964), defense demand/defense effectiveness, defense demand, defense effectiveness. Means and SD for each of the 17 Rorschach Primary Process categories scores, are shown, as well as for full scale IQ, verbal IQ and performance IQ. The paper contains a detailed report of the interrelationship of descriptive characteristics, social class and crime variables, and of the interrelationships of personality (Rorschach test) and intellectual (WAIS) characteristics with background, social-class, and crime variables. Factor analysis identified the same five major factors and ten minor factors as in the previous study (Kahn, 1965). Factor 1 might well be considered a primary process-secondary process factor. It is bipolar, that is a dimen-

sional continuum with two opposed extremes. One pole – the insane one – is represented by psychiatric evaluation of insanity, and is characterized by impulsive, primitive, and reality distorted responding. The other pole – the sane one – is represented by psychiatric evaluation of sanity, and is characterized by delay, reflection, and realistic mode of response. Factor 2 is a one-dimensional factor, concerned with measured intellectual functioning, and is associated with educational level and with socialized and modulated expression of primary process (level 2). Factor 3 is a bipolar factor that is essentially concerned with Hollingshead's social-class levels and their component parts. At one extreme, there are the constellation of low occupational and social-class level, and previous serious difficulty with the law. At the other end of this dimension, there are educational achievement and a history of satisfactory school adjustment. Factor 4 represents a basic dimension concerning the marital history of murderers. A murderer who was high on this factor would be an individual who had multiple and often unstable marital experiences. Factor 5 is clearly a unitary factor representing the Rorschach primary process expression of aggressive drive as a basic dimension of the personality of murderers.

Sethi, Gupta & Nathawat (1971) administered the Rorschach test, according to Klopfer (Klopfer, Ainsworth, Klopfer, & Holt, 1954), in 25 out of 300 male prisoners convicted of murder (mean age: 29.8), all confessed and all sentenced for life-imprisonment, highlighting: no significant distribution of location variables; over emphasis on form (64.2%), suggesting “*inadequate personality and neurotic constriction*”; CF and C outnumbering FC (average 1.52, 0.68 and 0.36, respectively), representing “*weak*

emotional control and impulsive behavior”; FM responses, relatively greater as compared to M, “*indicative of immediate need for gratification*”; frequent aggression CF responses (explosion, fire, blood, injured body parts), revealing “*infantile, immature and impulsive mode of behavior... an uncontrolled acting-out of emotional reactions*”; low texture and achromatic colour determinants (mean: 0.80), indicating “*minimal level of anxiety*”; low occurrence of human (mean: 1.08) and sexual (mean: 0.12) responses, “*indicative of lack of empathy and disturbed interpersonal relationship*” and of “*basic inadequacy in their social adjustment*”; scanty presence of diffusion and vista responses (mean: 0.52) and prevalence of extra-tensive trend, portraying “*lack of introspection and insight*”; F+% (52.0%) and popular responses (mean: 3) considerably low, suggesting “*improper reality testing... markedly impaired ego-functioning with unstable emotionality... failure of the ability to participate in communal or popular thinking and sociability within a specific culture or the conforming of the individual's thinking to that of the group*”.

Schachter & Cotte (1972) presented Rorschach data (not specified the method) from a sample of 21 male murderers, aged 19-52 (62% < 30), all but two married, unskilled workers, without any psychiatric symptom (6 out of 21, addicted to alcohol; 11 out of 21, mild cognitive disability, with IQ < 70). Age, marital status, job, IQ (60-100; 90-100 in 3/21, 80-90 in 7/21, 60-70 in 11/21), victim, motive for the murder, some basic Rorschach variables (R, style of perception, Erlebnistypus, G/D ratio, F+%, V%, rejections, unusual contents such as Anat, Mask, Sex) are detailed for each case. Mean and range values are shown for the following variables (tab. n. 2)

Table 2 – Rorschach Variables in 21 Male Murderers (Schachter & Cotte, 1972)

Rorschach Variable (*)	Mean	Range	Notes
R	21.3	10-35	< 20 in 8/21
G	5.2	1-13	//
D	13.1	3-20	//
Dd	1.8	1-5	//
Dbl (Space)	0.7	0-3	Present in 14/21
Do	0.33	0-2	Present in 6/21
F%	80.0	60-92	//
F+%	76.0	47-97	//
K	1.4	0-4	Present in 16/21
FC	0.3	0-2	Present in 7/21
CF	1.0	0-4	Present in 11/21
C	0.52	0-4	Present in 5/21
CF+C	1.5	0-7	//
FClob	0.8	0-3	Present in 14/21
A%	44.5	23-85	//
H%	10.2	3-33	Present in 18/21
Anat%	8.4	3-45	Present in 14/21
V%	29.5	10-72	Present in 18/21
Orig%	1.6	3-5	Present in 9/21
Card Rejection	//	//	Present in 7/21, once or more; Card II: 2; V: 1; VI: 2; VII: 3; X: 2
Rotation of the cards	18.3	4-11	Present in 16/21
Responses in para-standard position	30.2	11-58	Present in 17/21

(*): Not Specified Rorschach Method

The Authors underlined the preliminary nature of these results, unsuitable to outline a 'murderous personality'. Anyway, they noted: low R, low F+%, high Do and low Orig%, possibly reflecting low IQ; low H%, related to difficulties in interpersonal relationships; high Anat%, suggesting somatic concerns and self and heterodirect aggressivity; high % of responses in para-standard position, interpreted as an expression of the tendency towards oppositional and/or aggressive behaviors.

Karsvnie, Lazcano De Anta, Rigazzino & Saade De Alonso (2000) studied the Rorschach protocols of 28 male murderers (aged 21-68) out of 110 prisoners in Argentina, looking for the most significant Rorschach variables from a forensic point of view "...as regards lucidity, responsibility, competence degree, emotional alterations and potential danger degree". Only 21 records were considered, 3 being excluded for clinical heterogeneity and 4 because of $R < 8$. Murderers Rorschach showed: low R (20 in 1/21; mean: 11), as expected in a forensic setting; W higher than expected 20-30%; low M (0 in 5/21, 1 in 9/21), suggesting immaturity, poor internal resources and reduced capacity of sublimation; F+% lower than expected 80-95% (normal values in 9/21; 70-80% in 7/21; lower than 70% in 5/21), indicative of impaired cognitive function and improper reality testing; FM responses relatively greater than M, suggesting a basic emotional instability; prevalence of labile colour responses, related to impulsivity.

Léveillé & Lefebvre (2008) and Vignola-Lévesque & Léveillé (2017) reported Rorschach findings according to the Comprehensive System (CS) (Exner, 2001, 2003) in four males (29, 45, 35 and 30 years old) who killed their wives following their marital separation. The scoring of the responses was performed by two examiners, on the basis of consensual agreement. The four Rorschach records were characterized by: normal R (15, 23, 19, 21); high lambda (> 0.99 in each case); unusual FC: CF+C ratio (normal = 2:1) (1:2, 1:0; 2:0; 0:3); lack of C; high FM (1, 3, 2, 0); high A% (46.6; 69.6; 63.2; 47.6); low AG (except in one case: 1, 0, 0, 0); low S (except in one case: 0, 0, 1, 5); low M (except in one case: 0, 0, 2, 1); low H (0, 0, 2, 0); presence of Per (personalized responses) (3, 1, 0, 0); absence of Fr-rF (mirror responses) (except in one case: 1, 0, 0, 0). According to the Authors, high lambda suggests a rigidity of defense mechanism, an over-investment of concrete reality, and an overcontrol of the pulsional life, while high FM is an index of immaturity, high A% is related with an impairment of socialization, low M indicates a deficit of mentalization abilities and low H, difficulties in human relationships. In one case, high S suggests high aggressivity, while high Per in the other subject is related to narcissistic traits, and to the tendency of over-controlling the others.

Descriptive studies on murderer samples compared with normative data (N = 2)

Kaser-Boyd (1993) studied a sample of 28 women, 19 to 60 years old, 14 white, 12 black and 2 Hispanic, all charged with first-degree murder, restricted in jail (more than two thirds) or on bail awaiting trial, consecutively referred for pretrial psychological evaluation, under court appointment, to assist with their defense, addressing issues of competence to stand trial, mental state at the time of offense and current dangerousness. The victim in each case was a spouse or someone with whom the defendant was cohabiting. In all cases, there was a history of battering in the relationship, that was usually extreme in degree; in 55% of the cases, the killing clearly occurred in the midst of a violent domestic argument, and the defendant seemed to have a reasonable belief that her life was in danger. None of the women appeared to be psychotic on clinical interview; 21 showed symptoms of anxiety and depression (2 were psychiatrically hospitalized, both secondary to suicidal ideation; 2 received outpatient therapy of 10-20 sessions at a county mental health center, with a diagnosis of Major Depressive Episode; 15 had had symptoms of anxiety and depression for some time but had limited contact with helping professionals; 2 had become dependent on alcohol as 'self-medication'). Testing was conducted within 1 to 6 months of the homicide. According to WAIS-R (Wechsler Adult Intelligence Scale), 6 of the 28 women had IQs below 70, and appeared to have functioned at this level for a number of years before homicide. The Rorschach was administered according to the Comprehensive System (CS) (Exner, 1986), and scored by the Author; 22 protocols were rescored by a 'blind' scorer (the 6 protocols of women with IQs of less than 70 were not rescored because they were very short, containing 8 or fewer responses, and were eliminated from statistical analysis). Interscorer agreement was calculated as percentage agreement for location, developmental quality, determinants, form quality, content, pairs/reflections, popular, and special scores. Percentage agreements, respectively, were .92, .95, .83, .90, .90, .97, .98 and .83. Descriptive statistics (mean, standard deviation, mode, range, skewness and kurtosis) were calculated for a number of variables of CS, and statistically compared to the scores of 600 nonpatient adults reported by Exner (1986) with Welch's V (Wilcox, 1987), a modified t test suitable for comparisons with unequal variances. In addition, ratios and percentages were compared to expected frequencies for the same normative sample and subjected to chi-square and Fisher Exact tests. Since five out 22 women had protocols with 14 or fewer responses, statistical analyses were conducted both with and without the $R < 14$ protocols; the exclusion of the shorter records resulted in minimal difference in significance. The homicide sample as a whole was characterized by the delivery of short records (mean: 18.27 vs 22.57; SD: 6.88 vs 5.54; $V = 7.384$, $p < 0.05$), not related to IQ, that was normally distributed in this group, and not caused by defensiveness, not suggested in clinical inter-

views: in test taking, these women appeared to be attempting to do their best. The homicide group was also significantly higher on Lambda (mean: 1.03 vs 0.59, SD: 0.63 vs 0.28; $V = -.157$, $p < 0.05$). According to V values, homicide group showed statistically significant differences ($p < 0.05$), with lower cognitive variables (R, Lambda, Blends, Zf, Zd, X+%, P), lower control variables (Ea, es, FC, CF) and lower affect variables (Lambda, Afr). As a whole, this group of homicide battered women showed cognitive constriction, lack of internal resources for problem solving, tendency to be ambivalent and to vacillate between thinking and acting, strong affect, not well modulated by cognitive operations and more likely to be discharged or externalized, high vulnerability in provocative situations, tendency to be backing away as main method of coping, distortions of reality testing, difficulties in perceiving the world as others do. The Author warns against the limitations of her study: the reduced sample size, non-random sampling, lack of control or comparison group, the *artificial use of Exner normative data for statistical comparison*. In conclusion, she recommends that “*This study is of a low-base-rate phenomenon and is exploratory in nature. Generalizations from this sample should be cautious ones*”.

Zizolfi, Catanesi, Grattagliano, & Zizolfi (2017) examined 20 murderers with no psychiatric history and without any psychiatric disease according to DSM-5 diagnostic criteria, tested according to the SRR (Scuola Romana Rorschach) in a forensic setting, and judged as ‘fully responsible’ (i.e. legally sane). The group showed no statistically significant difference from normative SRR control group (Cicioni, 2016; Giambelluca, Parisi & Pes, 1995; Parisi & Pes, 1990) with regard to cognitive functions and reality control (R, R+, R+%, F+%, Reality Index). Major statistically significant differences (Student two tailed t test; level of significance: $p < 0.05$) resulted as regards affective functions, with H (Human) response percent much lower (mean: 7.75, SD: 1.7; 0.0% in 6/20, < 8.0% in 5/20, < 15.0% in 5/20; normal values: 10-20 in males, 20-30 in females) and Impulsivity Index much higher (mean: 0.79, SD: 0.1; > 1.00 in 6/20, > 0.75 in 4/20; > 0.60 in 4/20; normal value: 0.35), suggesting compromised interpersonal relationships and marked impulsivity. No difference was found between 9 ‘non impetus crime’ and 11 ‘crime of impetus’, the latter being characterized by the lack of planning and/or peculiar brutality and cruelty of the crime.

Discussion

Descriptive studies on adolescent murderers (N = 4)

These four studies have been mentioned for the purpose of completeness of the present review, but they are mainly of historical interest, because of their great methodological limitations: no studies specify the Rorschach method or report a full quantitative Rorschach picture; no statistical

descriptive analysis was performed, and the sample size is always too small, with N ranging from 5 (Durand de Bousingen, 1971) to 9 (Schachter & Cotte, 1949), 10 (McCarthy, 1978) and 11 (Schachter & Cotte, 1963). However, some results are noteworthy, and will be mentioned in conclusive remarks.

Descriptive studies in adult murderers (N = 16)

10 out of 16 studies have been considered for the purpose of completeness of the present review, but suffer from great methodological limitations:

- 7/16 do not specify the Rorschach method (Anastasiadis, 1965; Paoletta, 1958; Romano & Paoletta, 1958, 1958a; Satten, Menninger, Rosen & Mayman, 1960; Schachter & Cotte, 1972; Schneider, 1955);
- 8/16 do not perform any statistical descriptive analysis (Anastasiadis, 1965; Léveillé & Lefebvre, 2008; Paoletta, 1958; Romano & Paoletta, 1958, 1958a; Satten, Menninger, Rosen & Mayman, 1960; Schachter & Cotte, 1972; Vignola-Lèvesque & Léveillé, 2017);
- 8/16 consider samples too small in size ($N < 22$) ($N = 4$ in Léveillé & Lefebvre, 2008; Satten, Menninger, Rosen & Mayman, 1960; Vignola-Lèvesque & Léveillé, 2017; $N = 18$ in Schneider, 1955; $N = 20$ in Paoletta, 1958; Romano & Paoletta, 1958, 1958a; $N = 21$ in Karsvnie, Lazcano De Anta, Rigazzio & Saade De Alonso, 2000; Schachter & Cotte, 1972).

Consequently, their findings must be regarded as very preliminary, just suggestions or working hypotheses looking for validation through confirmatory studies (see conclusions).

The remaining 6 out of 16 studies can be considered more valid from a methodological point of view, as they examined larger samples, administered Rorschach test within a multimethod assessment battery, specified Rorschach methods, and controlled a number of variables: sex, age, IQ, murder type and degree, sentence, in prison setting administration, psychiatric diagnosis, evaluation of legal sanity, level of cooperation, type of victims, and so on.

Perdue reported mean and SD of Rorschach variables, according to Beck (1949, 1950, 1952) and Piotrowski (1957), in two similar samples of 47 (Perdue, 1961) and 53 (Perdue, 1964) normal IQ legally sane male inmate murderers, mostly serving life terms at the Virginia State penitentiary, who were administered the Rorschach, T.A.T., H.T.P. and the Otis Quick-scoring Test of mental Ability and the Revised Beta Examination. In both studies, Rorschach factors found to be very infrequent were not considered. Mean and SD values for primary Rorschach factors in the 1st and the 2nd study were tabulated as follows, showing no significant difference between the two samples (see tab. n. 1).

In the second paper, Perdue (1964) noted that person-

ality factors seemed very similar to those ones of the previous study, and enhanced a lot of Rorschach variables, which will be considered in conclusive remarks. In summary, Rorschach pattern, according to the Author, suggests "...a person who appears to be of dull-normal intelligence, stereotyped in his thinking, and who may be trying extremely hard to conform. Perhaps subject has had enough prior experience with his emotions to know that he must try to control them. It is as if he is stepping cautiously in an area where he has learned, from bitter past experience, that trouble may lie. Such caution appears to be causing the constriction of emotional life that prevents any wandering off the beaten path. Then again, it must be taken into consideration that subject is trying to conform, being aware that his prison record or adjustment has a great bearing on his future release to society. It is thought that he is hiding his emotions and that inside exists what Banay (1952) has termed 'an emotional smoldering'. The lack of inner creativity to serve as a check could mean that often the road is open to the primitive forces of the subconscious (Banay, 1952). The depressive characteristics, which were in evidence throughout the personality pattern, could add weight to Wilson's (1951) assumption that prison has an extremely depressing effect". Anyway, the Author is perfectly aware that "A study of this nature raises, among many questions, the idea of comparisons with similar research in other...prisons".

Kahn (1965, 1967, 1971), in search for specific characteristics of murderers by means of techniques of factorial analysis, repeatedly examined a sample of 43 individuals (42 males, 2 females), consecutively admitted during a period of seven years to a University Psychiatric Hospital with the plea of insanity to the charge of murder, and each evaluated for a 30-day period, both psychiatrically and through a battery of psychological tests. Psychiatric examinations and interviews allowed to obtain: a) sociodemographic characteristics and the personal and social history obtained from the patient (sex, age, religion, ethnic race, marital status, number of marriages, education, occupation and stability of occupation, social class level, number of siblings, sibling position, school adjustment, broken home); b) the patient's description of the crime and the events that led up to it (including type of victims, weapons, drinking at the time of the murder, criminal history with number of previous arrests, number of prison terms, and nature of previous crime); c) a formulation of the patient's personality dynamics, and d) diagnosis and evaluation of legal sanity (35% legally insane). WAIS and Rorschach tests were administered by the same examiner. The Rorschach were scored according to Holt (1962) and Holt & Havel (1960) primary process system, based on psychoanalytic distinction between primary and secondary process (Kahn, 1965, 1971) and according to Mayman's (1964) seven category scoring system of Rorschach form level, in order to evaluate reality adherence (Kahn, 1967): each Rorschach response is scored for the presence, type and degree of drive (libidinal or aggressive) and for the presence, type and degree of formal perceptual or logical distortions, according to Holt (1962)

and Holt & Havel (1960); a reality adherence score for each murderer's protocol was determined by dividing the total of the murderer's form level score, according to Mayman's (1964), by the number of responses in his/her protocol. Means and SD for each of the 17 Rorschach Primary Process categories scores are shown, as well as for full scale IQ, verbal IQ and performance IQ. Data from the medical chart, the WAIS and the Rorschach were factors analyzed by a computer program which used a principal component method with a Varimax rotation to approximate orthogonal simple structure; only factors with loadings above .30 were rotated. Only 39 variables were considered, since the factor-analysis procedure made necessary to limit the number of variables: a) *past adjustment* (N = 4): broken home, number of prison terms, degree of violence of previous crimes, school adjustment; b) *social class* (N = 6): social class (Hollingshead's five categories), occupational (Hollingshead's seven level classification), education, race, number of siblings, birth-order position; c) *demography* (N = 3): age, sex, number of marriages; d) *the murder* (N = 3): relationship to victim, weapon, number of persons killed; e) *evaluation* (N = 2): legally sane, legally insane; f) *intelligence* (N = 4): full scale IQ, verbal IQ, performance IQ, performance-verbal IQ; g) *Rorschach Primary Process* (according to Holt, 1962 and to Holt & Havel, 1960) (N = 17): total content, libido level 1, libido level 2, total libido, aggression level 1, aggression level 2, total aggression, formal level 1, formal level 2, total formal, grand total primary process, total level 1, total level 2, form level/R (Mayman, 1964), defense demand/defense effectiveness, defense demand, defense effectiveness. Factor analysis identified the same five major factors and ten minor factors in both studies, which account for about 62% of total variance (Kahn, 1965, 1971). Factor I (24.26% of total variance) might well be considered as a sane-insane or a primary process-secondary process factor, taking into account Total Formal Primary Process (Perceptual or Logical Distortion), Primitive (Level 1) Aggressive Drive, Primitive (Level 1) Libidinal Drive, Defense Demand, Defense Effectiveness, Form-level Accuracy, and Sane. It is bipolar, that is a dimensional continuum with two opposed extremes. One pole – the insane one - is represented by psychiatric evaluation of insanity, and is characterized by impulsive, primitive, and reality distorted responding. The other pole – the sane one – is represented by psychiatric evaluation of sanity, and is characterized by delay, reflection, and realistic mode of response. Factor II is a one-dimensional factor, concerned with measured intellectual functioning, and it is associated with educational level and with socialized and modulated expression of primary process (level 2). Factor III is a bipolar factor that is essentially concerned with Hollingshead's social-class levels and their component parts. Factor IV represents a basic dimension concerning the marital history of murderers. Factor V (5.76% of total variance) is clearly a unitary factor representing the Rorschach primary process expression of aggressive drive, associated with the compelling need for defence, as a basic

dimension of the personality of murderers; it takes into account four Rorschach content variables: Aggression Level II, Total Aggression, Total Content and Defense Demand.

Sethi, Gupta & Nathawat (1971) administered the Rorschach test, according to Klopfer (Klopfer, Ainsworth, Klopfer, & Holt, 1954), in 25 out of 300 male prisoners convicts of murder (mean age: 29.8), all confessed and all sentenced for life-imprisonment, highlighting some remarkable features, which will be detailed in our conclusive remarks.

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Kaser-Boyd (1993) studied a sample of 28 women, 19 to 60 years old, 14 white, 12 black and 2 Hispanic, all charged with first degree murder, restricted in jail (more than two thirds) or on bail awaiting trial, consecutively referred for pretrial psychological evaluation, under court appointment, to assist with their defense, addressing issues of competence to stand trial, mental state at the time of offense and current dangerousness. The victim in each case was a spouse or someone with whom the defendant was cohabiting. None of the women appeared to be psychotic on clinical interview; 21 showed symptoms of anxiety and depression. Testing was conducted within 1 to 6 months of the homicide. According to WAIS-R (Wechsler Adult Intelligence Scale), 6 of the 28 women had IQs below 70, and appeared to have functioned at this level for a number of years before homicide. The Rorschach was administered according to the Comprehensive System (CS) (Exner, 1986), and scored by the Author; 22 protocols were rescored by a 'blind' scorer (the 6 protocols of women with IQs of less than 70 were not rescored since they were very short, containing 8 or fewer responses, and were eliminated from statistical analysis). Interscorer agreement was calculated as percentage agreement for location, developmental quality, determinants, form quality, content, pairs/reflections, popular, and special scores. Percentage agreements, respectively, were .92, .95, .83, .90, .90, .97, .98 and .83. Descriptive statistics (mean, standard deviation, mode, range, skewness and kurtosis) were calculated for a number of variables of CS, and statistically compared to the scores of 600 nonpatient adults reported by Exner (1986) with Welch's V (Wilcox, 1987), a modified *t* test suitable for comparisons with unequal variances. In addition, ratios and percentages were compared to expected frequencies for the same normative sample and subjected to chi-square and Fisher Exact tests. Since five out of 22 women had protocols with 14 or fewer responses, statistical analyses were conducted both with and without the $R < 14$ protocols; the exclusion of the shorter records resulted in minimal difference in significance. The homicide sample as a whole was characterized by the delivery of short records (mean: 18.27 vs 22.57; SD: 6.88 vs 5.54; $V = 7.384$, $p < 0.05$), not related to IQ, that was

normally distributed in this group, and not caused by defensiveness, not suggested in clinical interviews: in test taking, these women appeared to be attempting to do their best. The homicide group was also significantly higher on Lambda (mean: 1.03 vs 0.59, SD: 0.63 vs 0.28; $V = -.157$, $p < 0.05$). According to V values, homicide group showed statistically significant differences ($p < 0.05$), with lower cognitive variables (R, Lambda, Blends, Zf, Zd, X+%, P), lower control variables (Ea, es, FC, CF) and lower affect variables (Lambda, Afr). As a whole, this group of homicide battered women showed cognitive restriction, lack of internal resources for problem solving, tendency to be ambivalent and to vacillate between thinking and acting, strong affect not well modulated by cognitive operations and more likely to be discharged or externalized, high vulnerability in provocative situations, tendency to be backing away as main method of coping, distortions of reality testing, difficulties in perceiving the world as others do. The Author warns against the limitations of her study: the reduced sample size, non-random sampling, lack of control or comparison group, the *artificial use of Exner normative data for statistical comparison*. In conclusion, she recommends that "*This study is of a low-base-rate phenomenon and is exploratory in nature. Generalizations from this sample should be cautious ones*".

Zizolfi, Catanesi, Grattagliano, & Zizolfi (2017) compared Rorschach results from 20 murderers with no psychiatric history and without any psychiatric disease according to DSM-5 diagnostic criteria, tested according to the SRR (Scuola Romana Rorschach) in a forensic setting, and judged as 'fully responsible' (i.e. legally sane), with data from normative SRR control group (Cicioni, 2016; Giambelluca, Parisi & Pes, 1995; Parisi & Pes, 1990). No statistically significant difference was found with regard to cognitive functions and reality control (R, R+, R+%, F+%, Reality Index). Major statistically significant differences (Student two tailed *t* test; level of significance: $p < 0.05$) resulted as regards affective functions, with H (Human) response per cent much lower (mean: 7.75, SD: 1.7; 0.0% in 6/20, < 8.0% in 5/20, < 15.0% in 5/20; normal values: 10-20 in males, 20-30 in females) and Impulsivity Index much higher (mean: 0.79, SD: 0.1; > 1.00 in 6/20, > 0.75 in 4/20; > 0.60 in 4/20; normal value: 0.35), suggesting compromised interpersonal relationships and marked impulsivity. No difference was found between 9 'non impetus crime' and 11 'crime of impetus', the latter being characterized by the lack of planning and/or peculiar brutality and cruelty of the crime.

Conclusions

In the present review we examined 22 descriptive Rorschach studies on murderer samples without controls, and 2 descriptive Rorschach studies in murderer samples compared with normative data. All the studies considered report Rorschach data collected after the murder, in a jail

context, for forensic or research purposes, after a variable time from the murder. As a consequence, the results are not generalizable, except to populations of a similar type, taking into consideration and possibly controlling all the variables involved. In no case, these data may be considered 'predictive' of homicidal behavior.

Anyway, descriptive not controlled group Rorschach studies on murderer samples, must be considered as preliminary exploratory investigations, useful to generate hypotheses to be consequently tested through controlled studies on larger samples. To achieve this goal, it is necessary to collect reliable and valid data, according to a methodological flawless design, that should meet the following criteria:

- sample size as large as possible, at least with $N > 20-30$;
- full personal history, as detailed as possible, including murder and his/her sentencing;
- detailed description of: setting (forensic, clinical, experimental), characteristics of cases (sex, age, schooling or education, marital status, job, full psychiatric state examination, psychiatric diagnosis according to DSM-5-TR and/or ICD-11, time after the murder, length of time served on sentence), features of murder (weapon; types: familicide, parricide, matricide, sexual homicide, rage murder, catathymic homicide, and so on), features of victim/victims (sex, age, schooling, marital status, relationship with the murderer);
- multi-method/multi-source evaluations including interviews, Rorschach test, self-rating questionnaires, malingering evaluation test and so on (Erard, & Evans, 2017);
- use of well standardized and psychometrically reliable and valid Rorschach methods, i.e. those (Zizolfi, 2016) of the Scuola Romana Rorschach (SRR) (Cicconi, 2016, 2020; Parisi, & Pes, 1990a, 1990b, 2010; Rizzo, Parisi, & Pes, 1980), the CS Comprehensive System (Abbate & Porcelli, 2017; Exner, 1969, 1974, 1978, 1986, 1991, 1993, 1997; Exner & Erdberg, 2005; Exner, Porcelli, & Appoggetti, 2001; Lis, Zenaro, Salcuni, Parolin, & Mazzeschi, 2007), and the R-PAS, Rorschach Performance Assessment System (Meyer & Viglione, 2011; Meyer, Viglione, Mihura, Erard, & Erdberg, 2013, 2015; Mihura & Meyer, 2018);
- extensive descriptive statistical analysis (mean, standard deviation, mode, range, skewness and kurtosis) of main or all Rorschach variables and indexes.

Many studies considered in the present review do not satisfy one or more of these criteria:

- 12/22 considered samples too small in size ($N < 22$) ($N = 4$ in Léveillé & Lefebvre, 2008; Satten, Menninger, Rosen & Mayman, 1960; Vignola-Lèvesque & Léveillé, 2017; $N = 5$ in Durand de Bousingen, 1971; $N = 9$ in Schachter & Cotte, 1949; $N = 10$ in

McCarthy, 1978; $N = 11$ in Schachter & Cotte, 1963; $N = 18$ in Schneider, 1955; $N = 20$ in Paoella, 1958; Romano & Paoella, 1958, 1958a; Zizolfi, Catanesi, Grattagliano, & Zizolfi, 2017; $N = 21$ in Karsvnie, Lazcano De Anta, Rigazzio & Saade De Alonso, 2000; Schachter & Cotte, 1972);

- 11/22 do not specify the Rorschach method (Anastasiadis, 1965; Durand de Bousingen, 1971; McCarthy, 1978; Paoella, 1958; Romano & Paoella, 1958, 1958a; Satten, Menninger, Rosen & Mayman, 1960; Schachter & Cotte, 1949, 1963, 1972; Schneider, 1955);
- 12/22 do not perform any descriptive statistical analysis (Anastasiadis, 1965; Durand de Bousingen, 1971; Léveillé & Lefebvre, 2008; McCarthy, 1978; Paoella, 1958; Romano & Paoella, 1958, 1958a; Satten, Menninger, Rosen & Mayman, 1960; Schachter & Cotte, 1949, 1963, 1972; Vignola-Lèvesque & Léveillé, 2017).

As a consequence, findings from 15/22 studies must be regarded as very preliminary, just suggestions or working hypotheses looking for validation through confirmatory studies; this is true for:

- the great variability of total R, in 9 (Schachter & Cotte, 1949) and in 11 adolescent murderers (Schachter & Cotte, 1963);
- higher than usual values of Space responses, Anat% and Sex%; $CF+C > FC$, in 18 murderers (Schneider, 1955);
- the distinction between 'hyperthymic personalities', with Rorschach signs of impulsivity and oppositivity (high whole and space responses, high C; low banal/popular responses), and 'cool personalities', without particular Rorschach features, in 20 male murderers in prison (Paoella, 1958; Romano & Paoella, 1958, 1958a);
- the constricted Rorschach records with "severe ego deficiency which permits impulse to flow too directly into action and not be easily shunted into thinking or verbalization", blurring of the boundaries between fantasy and reality, and transient feelings of depersonalization in four cases of young men (20-43 years old) convicted of bizarre, apparently senseless and without motive murders (Satten, Menninger, Rosen & Mayman, 1960);
- low number of R, low G%, low F+%, high Clob, constricted TVI, higher sex responses, suggesting a normal intelligence, poor imagination, rigid thinking, impoverished affect and Ego functions, sexual perseverations, in 67 murderers (Anastasiadis, 1965);
- the low total R (mean = 15, perhaps due to the forensic setting), the absence of M responses (indicating poor ability to problem interiorization), the lack of coloured responses in 4 out of 5 cases (no 'impulsive structure' of personality), the very few or absent H responses (suggesting reduced interpersonal contacts), the rejec-

tion of the IV table (so called 'father table'), in 5 adolescent murderers (Durand de Bousingen, 1971);

- the stability of Rorschach picture in a 15-year-old male, tested when 11, 13, and 15 years old: twice during his previous psychiatric hospitalizations for conduct disorders, and once after the murder (Durand de Bousingen, 1971);
- low R, low F+%, high Do and low Orig%, possibly reflecting low IQ; low H%, related to difficulties in interpersonal relationships; high Anat%, suggesting somatic concerns and self and heterodirect aggressivity; high % of responses in para-standard position, interpreted as an expression of the tendency towards oppositional and/or aggressive behaviors, in 21 male murderers (Schachter & Cotte, 1972);
- the evidence of episodic discontrol and dehumanization (McCarthy, 1978);
- low R (20 in 1/21; mean: 11), as expected in a forensic setting; W higher than expected 20-30%; low M (0 in 5/21, 1 in 9/21), suggesting immaturity, poor internal resources and reduced capacity of sublimation; F+% lower than expected 80-95% (normal values in 9/21; 70-80% in 7/21; lower than 70% in 5/21), indicative of impaired cognitive function and improper reality testing; FM responses relatively greater than M, suggesting a basic emotional instability; prevalence of labile colour responses, related to impulsivity (Karsvnie, Lazcano De Anta, Rigazzio & Saade De Alonso, 2000);
- normal R (15, 23, 19, 21); high lambda (> 0.99 in each case); unusual FC: CF+C ratio (normal = 2:1) (1:2, 1:0; 2:0; 0:3); lack of C; high FM (1, 3, 2, 0); high A% (46.6; 69.6; 63.2; 47.6); low AG (except in one case: 1, 0, 0, 0); low S (except in one case: 0, 0, 1, 5); low M (except in one case: 0, 0, 2, 1); low H (0, 0, 2, 0); presence of Per (personalized responses) (3, 1, 0, 0); absence of Fr-rF (mirror responses) (except in one case: 1, 0, 0, 0). According to the Authors, high lambda suggests a rigidity of defense mechanism, an over-investment of concrete reality, and an overcontrol of the pulsional life, while high FM is an index of immaturity, high A% is related with an impairment of socialization, low M indicates a deficit of mentalization abilities and low H, difficulties in human relationships. In one case, high S suggests high aggressivity, while high Per in the other subject is related to narcissistic traits, and to the tendency of overcontrolling the others, in four males (29, 45, 35 and 30 years old) who killed their wives following marital separation (Léveillé & Lefebvre (2008) and Vignola-Lévesque & Léveillé (2017) examined by means of Comprehensive System (CS) (Exner, 2001, 2003);
- Rorschach results (Zizolfi, Catanesi, Grattagliano, & Zizolfi, 2017) from 20 murderers with no psychiatric history and without any psychiatric disease according to DSM-5 diagnostic criteria, tested according to the SRR (Scuola Romana Rorschach) in a forensic setting, and judged as 'fully responsible' (i.e. legally sane),

compared with data from normative SRR control group (Cicioni, 2016; Giambelluca, Parisi & Pes, 1995; Parisi & Pes, 1990). No statistically significant difference was found with regard to cognitive functions and reality control (R, R+, R+%, F+%, Reality Index). Major statistically significant differences (Student two tailed t test; level of significance: $p < 0.05$) resulted as regards affective functions, with H (Human) response per cent much lower (mean: 7.75, SD: 1.7; 0.0% in 6/20, < 8.0% in 5/20, < 15.0% in 5/20; normal values: 10-20 in males, 20-30 in females) and Impulsivity Index much higher (mean: 0.79, SD: 0.1; > 1.00 in 6/20, > 0.75 in 4/20; > 0.60 in 4/20; normal value: 0.35), suggesting compromised interpersonal relationships and marked impulsivity. No difference was found between 9 'non impetus crime' and 11 'crime of impetus', the latter being characterized by the lack of planning and/or peculiar brutality and cruelty of the crime.

The remaining 7 out of 22 studies can be considered more valid from a methodological point of view, as they examined larger samples, administered Rorschach test within a multimethod assessment battery, specified Rorschach methods, controlled a number of variables: sex, age, IQ, murder type and degree, sentence, in prison setting administration, psychiatric diagnosis, evaluation of legal sanity, level of cooperation, type of victims, and so on.

The following indications may be considered as more well-founded:

- those resulting from Perdue's first sample in 47 (Perdue, 1961), and confirmed in a similar sample of 53 murderers (Perdue, 1964): 1) the high W to M ratio (6:1; NV: 3:1), suggesting "...that a lowered sense of personal adequacy may be present..." and "...that great amount of ambition could be in evidence, but it tends to outstrip true creative ability, which hints at strong feelings of inferiority and personal inadequacy. Such feelings can cause limited tension tolerance, with limited patience not only with others but with the self as well"; 2) the low Dd%, suggesting "...a practical-minded type of person who may tend to ignore the finer points of life"; the presence of S Space responses "...often indicative of opposition"; 3) the high F%, indicating a constriction and rigidity of personality, implying "...that much control is being exercised"; 4) the high F+%, implying "...the presence of both anxiety and emotional constriction"; the limited color response "...thought to further reinforce this emotional constriction; perhaps experience with emotions in the past has brought about fear of them"; 5) the low M, indicating "...a low fantasy activity" and "...a lack of inner wish activity to control the emotions when they arise"; 6) the low M to SumC ratio, suggesting "...an uncreative type of person of rather unstable emotionality who may be easily excitable"; 7) the low FC to CF ratio, confirming self-centered attitudes and that

“...a strong attempt is being made to overcompensate for the feelings of inferiority by adopting an egotistical or highly sensitive self-centered outlook”; 8) the very low M to FM (1:1; NV: 3:1) ratio, with concomitant m, indicating “...the presence of primitive impulses... (that) seem about equal in strength to the maturity that has the job of controlling them”; 9) the high A%, implying “... a limited imagination, unproductiveness and stereotypy in the thinking; a mentality that seldom rises above the common lines of existence”; 10) the low H%, suggesting “...a lack of faith in others” and “...a fear of people and their intentions, thus hinting at undue sensitivity toward the environment”; 11) the high P% and the lack of original responses, confirming “...a rather stereotyped mentality who seems to be rarely independent in his thinking. He seems content to adopt the ideas of others and displays little or no imagination in his thinking or planning”; 12) the high F+% (construction of reality), the high A% (adaptive thinking) with the high P% (conformity), which “...appear to indicate that subject is trying to protect himself against something – perhaps anxiety – within the personality structure”;

- those emerging by factors analytic studies by Kahn (1965, 1967, 1971), which identified two factors associated with Rorschach variables in 43 murderers administered the WAIS and the Rorschach test, scored according to Holt (1962) and Holt & Havel (1960) primary process system, and according to Mayman's (1964) seven category scoring system of Rorschach form level, in order to evaluate reality adherence. Factor I (24.26% of total variance) might well be considered a sane-insane or a primary process-secondary process factor, taking into account Total Formal Primary Process (Perceptual or Logical Distortion), Primitive (Level 1) Aggressive Drive, Primitive (Level 1) Aggressive Drive, Defense Demand, Defense Effectiveness, Form-level Accuracy, and Sane. It is bipolar, that is a dimensional continuum with two opposed extremes: one pole – the insane one - is represented by psychiatric evaluation of insanity, and it is characterized by impulsive, primitive, and reality distorted responding; the other pole – the sane – is represented by psychiatric evaluation of sanity, and is characterized by delay, reflection, and realistic mode of response. Factor V (5.76% of total variance) is clearly a unitary factor representing the Rorschach primary process expression of aggressive drive, associated with compelling need for defence, as a basic dimension of the personality of murderers; it takes into account four Rorschach content variables: Aggression Level II, Total Aggression, Total Content, Defense Demand;
- those evidenced by Sethi, Gupta & Nathawat (1971) in 25 out of 300 male prisoners convicted of murder (mean age: 29.8), all confessed and all sentenced for life-imprisonment, administered the Rorschach test, according to Klopfer (Klopfer, Ainsworth, Klopfer, & Holt, 1954): 1) no significant distribution of location variables; 2) over-emphasis on form (64.2%), suggest-

ing “inadequate personality and neurotic constriction”; 3) CF and C outnumbering FC (average 1.52, 0.68 and 0.36, respectively), representing “weak emotional control and impulsive behavior”; 4) FM responses relatively greater as compared to M, “indicative of immediate need for gratification”; 5) frequent aggression CF responses (explosion, fire, blood, injured body parts), revealing “infantile, immature and impulsive mode of behavior... an uncontrolled acting-out of emotional reactions”; 6) low texture and achromatic colour determinants (mean: 0.80), indicating “minimal level of anxiety”; 7) low occurrence of human (mean: 1.08) and sexual (mean: 0.12) responses, “indicative of lack of empathy and disturbed interpersonal relationship” and of “basic inadequacy in their social adjustment”; 8) scanty presence of diffusion and vista responses (mean: 0.52) and prevalence of extra-tensive trend, portraying “lack of introspection and insight”; 9) F+% (52.0%) and popular responses (mean: 3) considerably low, suggesting “improper reality testing... markedly impaired ego-functioning with unstable emotionality... failure of the ability to participate in communal or popular thinking and sociability within a specific culture or the conforming of the individual's thinking to that of the group”;

- those obtained by Kaser-Boyd (1993) in a sample of 28 women, 19 to 60 years old, 14 white, 12 black and 2 Hispanic, all charged with first degree murder, restricted in jail (more than two thirds) or on bail awaiting trial, consecutively referred for pretrial psychological evaluation, under court appointment, to assist with their defense, addressing issues of competence to stand trial, mental state at the time of offense and current dangerousness. The victim in each case was a spouse or someone with whom the defendant was cohabiting. None of the women appeared to be psychotic on clinical interview; 21 showed symptoms of anxiety and depression. Testing was conducted within 1 to 6 months of the homicide. According to WAIS-R (Wechsler Adult Intelligence Scale), 6 of the 28 women had IQs below 70, and appeared to have functioned at this level for a number of years before homicide. The Rorschach was administered according to the Comprehensive System (CS) (Exner, 1986), and scored by the Author; 22 protocols were rescored by a ‘blind’ scorer (the 6 protocols of women with IQs of less than 70 were not rescored since they were very short, containing 8 or fewer responses, and were eliminated from statistical analysis). Interscorer agreement was calculated as percentage agreement for location, developmental quality, determinants, form quality, content, pairs/reflections, popular, and special scores (percentage agreements, respectively, were .92, .95, .83, .90, .90, .97, .98 and .83). Descriptive statistics (mean, standard deviation, mode, range, skewness and kurtosis) were calculated for a number of variables of CS, and statistically compared to the scores of 600 nonpatient adults reported by Exner (1986) with Welch's V (Wilcox, 1987), a modified *t* test suitable for compar-

isons with unequal variances. Since five out of 22 women had protocols with 14 or fewer responses, statistical analyses were conducted both with and without the R < 14 protocols; the exclusion of the shorter records resulted in minimal difference in significance. The homicide sample as a whole was characterized by: 1) the delivery of short records (mean: 18.27 vs 22.57; SD: 6.88 vs 5.54; $V = 7.384$, $p < 0.05$), not related to IQ, that was normally distributed in this group, and not caused by defensiveness, not suggested in clinical interviews: in test taking, these women appeared to be attempting to do their best; 2) significantly higher Lambda (mean: 1.03 vs 0.59, SD: 0.63 vs 0.28; $V = .157$, $p < 0.05$); 3) lower cognitive variables (R, Lambda, Blends, Zf, Zd, X+%, P), lower control variables (Ea, es, FC, CF) and lower affect variables (Lambda, Afr), according to V values ($p < 0.05$). As a whole, this group of homicide battered women showed cognitive constriction, lack of internal resources for problem solving, tendency to be ambitious and to vacillate between thinking and acting, strong affect not well modulated by cognitive operations and more likely to be discharged or externalized, high vulnerability in provocative situations, tendency to be backing away as main method of coping, distortions of reality testing, difficulties in perceiving the world as others do.

All these findings deserve confirmation by means of case control group comparative studies, and adequate statistical methods. In any case, it must be taken into account that homicide is a rare, low-base-rate phenomenon, and a highly variable behavior, different from case to case, so that the very existence of a 'murderous mind', i.e. common to all or some murderers, is a dubious and questionable working hypothesis. On the other hand, Rorschach test is a very sensitive tool, offering an extremely in-depth and detailed analysis of personality, so that the psychodiagnostic picture is very different from case to case, leading to high inter-individual variability of Rorschach data even in very homogeneous murderer samples. As a consequence, generalizations should be cautious. According to Perdue's (1964) conclusive remarks, Rorschach test results "...add strong evidence to Banay (1952, p. 29) statement: *A scientific understanding and evaluation of the destruction of one human being by another, varies so greatly that true understanding can only be achieved in individual terms and reactions*".

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