

THE RORSCHACH TEST AND FORENSIC PSYCHOLOGICAL EVALUATION: PSYCHOSIS AND THE INSANITY DEFENSE

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No area of the legal system and mental health law is more controversial than the question of criminal responsibility and the insanity defense. Societies have wrestled with how to hold individuals responsible for actions who have committed crimes when they were “out of their mind.” The commission of a criminal act, particularly a heinous crime that outrages the sensibilities of the community, generates demands for retribution. Nevertheless, legal systems since antiquity have made allowances for individuals who were “insane,” by whatever definition was culturally relevant and current at the time. Because the majority of criminal defendants acquitted by reason of insanity are diagnosed as psychotic (Melton, Petrila, Poythress, & Slobogin, 1997), the chief focus here is on “psychosis.” It needs to be emphasized that psychosis is not simply tantamount to insanity, as will be seen in the discussion of criteria for the insanity defense.

This chapter reviews fundamental legal constructs concerning criminal responsibility, describes psychosis as a clinical and forensically relevant phenomenon, reviews clinical and theoretical constructs relevant to understanding psychosis, reviews the utility of the Rorschach test in the assessment of psychotic mental states, and provides tactical and strategic issues in the forensic assessment of psychosis when the question of criminal responsibility is raised.

THE INSANITY DEFENSE

Historically, societies have developed a variety of “tests” for determining basic principles of rationality and moral responsibility. Criminal codes from the ancient Middle East, Greek and Roman antiquity, medieval Europe, pre-Norman England, and more recently, in Anglo-American law have defined the basic parameters of what constitutes sanity and definitional criteria for excusing individuals of criminal responsibility when their actions were manifestly irrational (Robinson, 1996).

Modern jurisprudence on the insanity defense can be traced at least as far back as a 1505 case, which recorded a jury verdict of insanity (Perlin, 1989, p. 285). Since that time, judicial systems have struggled to define and refine standards of criminal responsibility necessary to exculpate individuals from guilt in the commission of a criminal act when they were “not in their right mind.” In the early 18th-century, English judges began attempting to define for juries mental conditions that would excuse, as a matter of law, otherwise criminal behavior (Perlin, 1989, p. 286). The most significant case in the history of the insanity defense in England (1843) arose out of the shooting by Daniel M’Naghten of Robert Drummond, the secretary of Prime Minister Robert Peel, M’Naghten’s intended victim. Based on his delusion that he had been persecuted by Peel and the Tory party, the jury found M’Naghten not guilty by reason of insanity. The M’Naghten decision established the fundamental conceptual basis for most subsequent insanity defense formulations, including the necessity of a threshold “mental disease or defect,” questions about the defendant’s *knowledge or appreciation* of the “nature and quality of the act,” and later, whether the individual was capable of fundamental self-control. Bonnie (1983) asserts the foundational moral basis of the insanity defense and the centrality of the cognitive/rational impairment: “It is fundamentally wrong to condemn and punish a person whose rational control over his or her behavior was impaired by the incapacitating effects of severe mental illness” (pp. 194–195).

Forensic mental health evaluations where there is a question of an insanity defense “require an investigation of the defendant’s mental state at the time of the offense (MSO)—a reconstruction of the defendant’s thought processes and behavior before and during the alleged crime (Giorgi, Guarnieri, Janotsky, et al., 2002; Melton et al., 1997, p. 186). The logic and process of forensic mental health evaluations has been definitively established by Grisso, where empirically developed mental health constructs and procedures are applied to legal standards (Grisso, 2003; Otto & Heilbrun 2002). Grisso distinguishes between *forensic assessment instruments*, *forensically relevant instruments*, and *clinical measures and assessment techniques* that assess psychopathology, intelligence, personality, and academic achievement, but require “the examiner to exercise a greater level of inference to move from the construct assessed to the issue before the court” (Otto & Heilbrun, 2002, p. 9; Otto, Edens, & Barcus, 2000). The Rorschach test and other psychological evaluation measures are useful in this context.

Understanding the insanity defense requires understanding criminal responsibility in relation to the associated notions of “just deserts” or “blame” for violations of society’s laws:

The Anglo-American legal system is grounded on the premise that persons are normally capable of free and rational choice between alternative acts and that one who chooses to harm another is thus morally accountable and liable to punishment. If, however, a person for any reason lacks the capacity to make rational choices or to conform his behavior to the moral and legal demands of society, traditionally he has been relieved of criminal responsibility and liability for his actions. (Brakel, Parry & Weiner, 1985, p. 707, cited in *Clark vs. Arizona*, amicus brief, p. 25)

Based on the fundamental notions that the law’s objectives are retribution and deterrence, “a person lacking the required intelligence, reasoning ability and foresight capac-

ity to understand the [criminal] code or its sanctions will not be deterred by them ...” (Brakel, Parry, & Weiner, 1985, p. 707, cited in *Clark vs. Arizona*, amicus brief, p. 25).

The American Law Institute (ALI) Model Penal Code test—foundational in the United States and developed in the mid-1950s to avoid pitfalls of earlier tests until revision prompted by the 1984 shooting of President Reagan—states that a defendant “is not responsible for his or her criminal conduct if, as a result of mental disease or defect, he or she lacked a *substantial* capacity either to *appreciate* [italics added] the criminality [*wrongfulness*] of his conduct [cognitive prong] or to conform his or her conduct to the requirements of the law [volitional prong].” The Federal Code and many state legislatures revised the standard in 1984 as a result of public outrage about President Reagan’s shooting by John Hinckley (*United States v. Hinckley*, 1981) removing the volitional prong and essentially reverting to the more restrictive M’Naghten right–wrong standard. A number of states have abolished the insanity defense entirely (e.g., Utah). By 1995, the full ALI test was being used by about 20 states “down from its peak of 25 states in the early 1980s. Some variation of the M’Naghten cognitive impairment only test held sway in about half the states” (Melton et al., 1997, p. 193). During the controversy following Reagan’s shooting, proposals by the American Bar Association (ABA), expressing an unwillingness to return to the strict M’Naghten test, proposed another test: “A person is not responsible for criminal conduct if, at the time of such conduct, and as a result of mental disease or defect, that person was unable to *appreciate* the wrongfulness of such conduct” (ABA, 1984, p. 118).

U.S. commentaries and case law on the insanity defense have refined definitional criteria for the “cognitive” and, where the ALI standard still holds, “volitional” prongs of insanity statutes. The M’Naghten rule is more restrictive than the ALI/ABA test. The M’Naghten rule provides for exculpation on two grounds: when the defendant did not know the nature and quality of the criminal act, or when the defendant did not know that the act was wrong (cited in Melton et al., 1997, p. 198). The ALI test combines the cognitive component of the M’Naghten test with the volitional component associated with the irresistible impulse test, an earlier and ultimately unsuccessful formulation. Under the ALI test, in contrast, the concept of “appreciation” of the wrongfulness or legality of the criminal conduct is of central importance in MSO evaluations.

Distinctions between *knowing* versus *appreciation* are critical in conceptualizing mental state at the time of offense assessments (*Hawaii v. Uyesugi*, 2002); *appreciation* represents a more complex weighing and consideration of facts. Many prosecutors feel that criminal conduct that is “organized” cannot by definition be “insane,” resorting to a standard for insanity that states “he knew what he was doing” (M’Naghten) or approximating the “wild beast test of 1724” (Robinson, 1996; Perlin, 2000, p. 225) as the criterion for mental conditions that exculpate criminal responsibility. (The wild beast test itself is of clinical, forensic, and historical interest: The 19th-century wild beast test of insanity is exemplified in Benjamin Rush’s description of moral derangement: “A wild and ferocious countenance; enlarged and rolling eyes; constant singing; whistling and hallooing; imitations of the voices of different animals; walking with a quick step; or standing still with hands and eyes elevated towards the heavens the madman, or maniac, is in a rage” (cited in Faigman, Kaye, Saks, & Sanders, 2002, p. 335). In this context, for example, the planned, cold blooded mass killing of seven individuals in a workplace violence

incident by a Xerox repair man, who was delusionally convinced that his coworkers conspired to sabotage his photocopy machines, was not be considered insane.

Courts and legal philosophers have struggled with a refinement of the concepts of “substantial impairment,” “appreciation,” and “wrongfulness” (Schopp, 1991), particularly when the criminal action is delusional but not necessarily disorganized. The ALI standard does not require a showing of total lack of knowledge but only the lack of “substantial capacity” (American Psychiatric Association, 1982, p. 2). Definition of the cognitive core of the culpability concept has focused on the words “know” (M’Naghten) and “appreciate” (ALI). Despite controversy (*Connecticut vs. Wilson*, *Hawaii vs. Uyesugi*, *Kelley vs. Tennessee*) “to know” has been more narrowly construed than “to appreciate” with respect to the breadth of the cognitive skill involved. Appreciation has been preferred by Congress, the American Law Institute, the American Bar Association, and the American Psychiatric Association. The American Psychiatric Association (APA) observed that *appreciation* has “an affective, more emotional, more personalized approach for evaluating the nature of a defendant’s knowledge and understanding” (APA, 1982, p. 2). Finagerette (1972) observed that appreciation is “the capacity to rationally assess—define and evaluate—his own particular act in the light of the relevant public standards of wrong.”

In *Kelley vs. Tennessee* (2005), the Tennessee Criminal Court of Appeals wrestled with the meaning of the term *wrongfulness* as opposed to *criminality*, parsing wrongfulness into legal, moral, and personal wrongfulness. In *State of Connecticut v. Wilson* (1997), the Connecticut Supreme Court sought to give content to the “appreciation of wrongfulness” language of the ALI standard, particularly the implied moral aspect of the term *wrongfulness*. In *Wilson*, the defendant argued that “morality must be defined in purely personal terms.” The state, in contrast, argued that “morality must be defined by societal standards.” Under such a reading, “a defendant is not responsible for his criminal acts as long as his mental disease or defect causes him personally to believe that those acts are morally justified, even though he may appreciate that his conduct is wrong in the sense that it is both illegal and contrary to societal standards of morality.” Attempting to find a middle way, the Connecticut court offered the following opinion (cited in Faigman et al., 2002, p. 340):

We conclude ... that a defendant does not truly “appreciate the wrongfulness of his conduct” ... if a mental disease or defect causes him both to harbor a distorted perception of reality and to believe that, under the circumstances as he honestly believes them, his actions do not offend societal morality even though he may be aware that society, on the basis of the criminal code, does not condone his action. Thus, a defendant would be entitled to prevail ... if as a result of his mental disease or defect, *he sincerely believes that society would approve of his conduct if it shared his understanding of the circumstances underlying his actions* (italics added; *State v. Wilson*, 700 A, 2d at 643, 1997).

This formulation permits the forensic mental health examiner to address the perceptions, reasoning, and beliefs that underlie the criminal conduct.

In most jurisdictions, the insanity defense is considered an affirmative defense (a defense which negates criminal responsibility) and, in most jurisdictions, including the fed-

eral courts, the burden of proof is placed on the defendant with a preponderance of the evidence standard of proof. Others, including the federal courts, require clear and convincing evidence (Parry & Gilliam, 2002). Rogers and Schuman (2000) note the numerous social and political factors that affect the adjudication of severely disturbed defendants, including public reactivity and misperceptions of the (rare) frequency and (limited) success with which the insanity defense is used.

As noted earlier, many states either abolished the insanity defense or adopted “guilty but mentally ill” standards. In this instance, juries may find that the defendant suffers from a “substantial disorder of thought or mood which significantly impairs judgment, behavior, capacity to recognize reality or ability to cope with the ordinary demands of life” (Michigan Comp. Laws, paragraph 330.1400a (1980)). Nevertheless, these conditions remain centrally pertinent to an inquiry and evaluation of the defendant’s mental state at the time of the offense (MSO), regardless of the ultimate legal disposition.

FORENSIC RELEVANCE OF PSYCHOSIS

Psychotic disorders have been described in great detail since the origins of clinical psychiatry at the end of the 19th century (Gottesman, 1990). Kraepelin and Bleuler, two pioneering psychiatrists, catalogued the characteristic symptoms of schizophrenia and the major psychoses, including hallucinations, delusions, thought disorder, mood disturbances, affective blunting, and social withdrawal. The major psychoses include schizophrenia, delusional disorders, major depressive disorder, and bipolar disorder. Psychotic disorders may also be the result of medical disorders (e.g., Huntington’s chorea or Parkinsonism) or substance-induced (methamphetamine-induced psychotic disorder). Causes of “schizophrenia-like” symptoms can involve general medical conditions, neurological and metabolic disorders, psychoactive substances, medications, and toxins. For example, I once examined a former police officer who delusionally believed that he was being “airbombed” by an electronic apparatus in his neighbor’s attic. He terrified the family by storming into the house with a shotgun. His delusions were the result of a hypertensive crisis that miraculously did not cause a massive stroke. His symptoms remitted almost immediately upon receiving emergency medical attention. My elderly grandmother was committed to a state hospital after she attempted to buy a pistol at the local gun shop in order to shoot her next door neighbor because she believed that her neighbor was pumping poisonous gases through her open windows, most likely the result of a vascular dementia.

The major psychoses embrace a variety of clinical symptoms involving thinking (errant basic assumptions, illogical thinking, disorganization or confusion of thought or speech), perception (inaccurate input through auditory, visual, or other senses), and mood (extreme dampening or excitation of emotional responding; Kirkpatrick & Tek, 2005; Poythress, Slobogin, Stevens, & Heilbrun, 2002, p. 353; Woods & McGlashan, 2005). The term *psychotic* is reserved where symptoms, particularly perception and thinking, cause *impaired reality testing*. Weiner (1966) refers to the disturbed relation to reality observed in psychosis, namely, the sense of reality and reality testing. The most common symptoms of psychosis include delusions (inaccurate but firmly held be-

liefs, e.g., the mother's belief that she and her children are being subjected to a remote body scan by government agents) auditory hallucinations (hearing voices), and ideas of reference (feelings that the radio is sending personally significant messages or that a camera in the bathroom, according to one patient, was broadcasting pictures of her on "worldwide TV").

Psychotic individuals may have a distorted sense of their personal importance: "The most intimate thoughts, feelings, and acts are often felt to be known to or shared by others, and explanatory delusions may develop, to the effect that natural or supernatural forces are at work to influence the afflicted individual's thoughts and actions in ways that are often bizarre. The individual may see himself or herself as the pivot of all that happens" (World Health Organization, 1992). The psychotic individual frequently feels caught up in mythic or predestined events: "Events seem to occur not by chance or at random, but because they are preordained" (Arieti, 1974, p. 31). The ICD-10 diagnostic criteria note the frequent presence of the following:

thought echo, insertion, or broadcasting; delusions of control, influence or passivity; hallucinatory voices giving a running commentary on the patient's daily experiences; persistent delusions that are culturally inappropriate or completely impossible (such as religious or political identities or superhuman powers and abilities); persistent hallucinations in any modality; breaks in thought, incoherence, irrelevance, or neologisms; catatonic behavior; negative symptoms such as apathy, poverty of speech, mood incongruity; and deterioration of personal behavior: aimlessness, idleness, self-absorption, and social withdrawal. (WHO, 1992, cited in Sadock & Sadock, 2005, p. 1417)

A key psychotic symptom is "thought disorder," a disturbance in the form and organization of thought and language (loosening of associations, incoherence, word salad, blocking), for which the Rorschach test has demonstrated unique sensitivity, even in the absence of obvious clinical disturbance (Kleiger, 1999). Psychosis often involves a severe disturbance and impairment of self-awareness and self-reference. It is a rare instance that psychotic individuals have "insight" into their nonsocially consensual perceptions and thoughts.

The primary forensic relevance of psychotic disorders is the fact that individuals may act on their experiences as if they were real. Sometimes these actions may involve violations of the law. In these cases, the issue of criminal responsibility may arise. Of central importance is that psychosis may play a role in either the cognitive (more likely) or volitional prongs (less likely) of pertinent insanity statutes. "The fact that the [psychotic] defendant's symptoms diminish the ability to 'know' or 'appreciate' the nature of criminal behavior or 'conform' conduct to objective legal mandates provides a potential basis for the judge or jury to determine that the individual should not be held morally responsible" (Poythress et al., 2002, p. 354).

As noted earlier, psychosis is the most common basis for the insanity defense (data from New York, California, and Georgia indicate that major psychoses were diagnosed in 82%–97%, 84%, and 85%–86% of successful insanity cases, cited in Poythress et al., 2002, p. 354), although the insanity defense is rarely used and even less frequently successful (raised in less than 1% of cases and successful in less than one quarter of the cases:

Steadman, Keitner, Braff, & Arvanites, 1983; Steadman, McGreevy, Morrisey, & Callahan, 1993). Most jurisdictions require a diagnosable mental disorder as a threshold for the impairment criterion, whether know, appreciate, or in the case of volitional cases, self-control.

RORSCACH ASSESSMENT OF PSYCHOSIS: STRATEGIC CONSIDERATIONS

The forensic psychological evaluation of psychosis in insanity defense cases is based on an assessment strategy that aims to assess the defendant's mental state at the time of the offense (MSO; Melton et al., 1997) relevant to the pertinent legal standard. It is not typically the case, however, that a clinician with a set of Rorschach cards or a Wechsler scale just happens to be present at the time of a criminal offense to examine the defendant's state of mind! Except for those rare, fortunate coincidences where a clinical examination occurs proximate to the commission of a crime, most evaluations take place at some temporal distance from the offense, sometimes preceding, but most typically, at a time following the offense. As noted by Melton and his colleagues, "Psychological tests provide information about *current* functioning, whereas an MSO examination seeks to reconstruct the defendant's *prior* mental state" (p. 241). Consequently, the assessment of criminal responsibility is commonly a *retrospective* task in which a reconstruction of the defendant's behavior and state of mind is necessary (Melton et al., 1997). Melton and his colleagues refer to these evaluations as "investigations" noting that "a typical MSO examination illustrates the forensic evaluation *par excellence*" (Melton et al., 1997, p. 234; see Figure 8-1 and Tables 8-5 and 8-6 in Melton et al.'s text for a detailed flow chart and outlines for the conduct of an MSO evaluation).

There are a number of tools and procedures that may assist the clinician in reconstructing the defendant's state of mind: defendant interviews to obtain offense-related information; observations of eye witnesses; reports of other third parties (e.g., family members or employers who had contact with the defendant prior to and following the offense); police reports; reports of treating clinicians prior to, at the time of, and following the offense; and clinical methods/techniques such as the Rogers Criminal Responsibility Scales (R-CRAS; 1984), which organize a number of factors relevant to an ultimate opinion concerning MSO.

The use of psychological tests in MSO is a particularly sensitive issue for a variety of reasons. As noted earlier (Otto & Heilbrun 2002), the use of clinical techniques that are unvalidated for specific forensic constructs demands clinician inferences that are subject to a variety of clinical and methodological criticisms, including malingering and problems with clinical judgment described by Meehl, Garb (1998), and others. Otto and Heilbrun noted, "The professional literature is barren in terms of sound empirical studies demonstrating either that psychological test data are useful as a means of establishing a link between particular diagnostic conditions and legally relevant behavior in individual cases or that they are useful for assigning individuals to discrete legal categories" (e.g., sane vs. insane; Melton et al., 1997, p. 241). Westen and Weinberger's recent response to Garb et al. (Westen & Weinberger, 2004), however, strengthens the confidence of clinicians in the disciplined use of clinical techniques.

In many cases, nevertheless, observations of witnesses or statements of defendants may suggest the presence of psychosis at the time of the offense. Some defendants will remain psychotic at the time of the examination, particularly if treatment efforts have been absent, avoided, or ineffective. Frequently, I have been fortunate enough to have family reports, reports of treating clinicians, other eye witnesses (including victims), first responder reports, emergency room reports, police reports, or clinicians in jails that document the presence of bizarre, disorganized behavior suggesting clinical psychosis, and the defendant remains psychotic at the time of the clinical and forensic examination. The administration of psychological tests, in particular the Rorschach test, then, has a solid basis on which to inform a clinical and forensic opinion, namely, detecting the clinical indicia of psychosis.

THE UTILITY OF THE RORSCHACH THE FORENSIC ASSESSMENT OF PSYCHOSIS

Given the likelihood that the forensic clinician may testify in court on the issue of a defendant's mental state at the time of the offense, some consideration of admissibility issues should be kept in mind. Depending on the jurisdiction, the court may rely on either *Frye* (1923), *Daubert* (1993) tests, or Federal Rules of Evidence (Committee on the Judiciary, 2004) for admissibility. This topic is considered later in the discussion of admissibility and testimony at court. Fortunately, the Rorschach assessment of psychotic disorders rests on a robust behavioral science foundation, which has been immune to attacks by Rorschach critics (Acklin, 1999). Gacono and Evans note that "the Rorschach provides an open structured, performance based cognitive perceptual problem solving task that is quite different from more close structured instruments" (Gacono & Evans, preface, this vol.). The Rorschach test is of particular value in relation to the problems with self-report where individual attempts to underreport or exacerbate or malingering psychopathology (Gacono, Evans, & Viglione, 2002; Ganellen, 1994, 1996; Ganellen, Wasyliv, Haywood, & Grossman, 1996; Grossman, Wasyliv et al., 2002). Increasingly, research has focused on obtaining base rate data on a variety of relevant forensic groups, making it even more desirable as a forensic assessment tool (Gacono & Meloy, 1994).

Rorschach noted the characteristic aspects of "schizophrenic" thinking in his seminal monograph (Rorschach, 1942). Rorschach noted the influence of E. Bleuler in his conceptualization of schizophrenia, although it should be remembered that schizophrenia as a clinical entity, until the *DSM-III*, was often used synonymously with psychosis ("acute schizophrenic reactions"). Rorschach observed the boundary disturbances and combinatory thinking frequently noted in psychotic records, including the Contamination response, observing that schizophrenics "give many interpretations in which con-fabulation, combination, and contamination are mixed in together" (Rorschach, 1942, p. 38).

Subsequent understanding of thought disturbance on the Rorschach test was strongly influenced by David Rapaport (Rapaport, 1951; Rapaport, Gill, & Schafer, 1968). On the basis of the verbalizations to the cards, Rapaport wrote that "one can infer the presence of thinking which does not adhere to the reality of the testing situation, as defined by attitudes, responses, and verbalizations of the normal population." Rapaport referred to "au-

tistic thinking” (p. 426, referring to Bleuler’s notions, 1911, of schizophrenic thought disturbance in his massive chapter in Rapaport, 1951). Rapaport referred to “deviant verbalizations” as indicative of thought disturbance (e.g., fabulized combinations, confabulations, and contaminations), the examination of which was “the highway for investigating disorders of thinking” (p. 431, cited in Kleiger, 1999, p. 46).

Watkins and Stauffacher (1952) attempted to quantify Rapaport’s categories by means of the Index of Pathological thinking or Delta Index (*d* for deviant), which was later revised and developed into the Thought Disorder Index (TDI; Johnston & Holzman, 1979). The Delta Index, like the TDI that followed it, included 15 coding categories, including all of Rapaport’s categories, with a weighting scheme to indicate level of severity: minor deviations receiving the lowest weights (.25), moderate instance receiving intermediate weights (.5 and .75), and severe instance of pathological verbalization receiving the highest weights (1.0). A number of studies have demonstrated the strengths and weaknesses of the Delta Index, but Kleiger notes “the Delta Index must be heralded as the first carefully constructed quantifiable scale focused exclusively on measuring thought pathology per se . . .,” advancing “a degree closer to a more sophisticated conceptual approach to identifying schizophrenia on the Rorschach” (Kleiger, 1999, p. 37).

Perhaps the most comprehensive and sensitive approach to assessing thought disorder on the Rorschach test was developed by Johnston and Holzman—the Thought Disorder Index (TDI; 1979). They combined earlier systems for the detection of thought disorder into a reliable coding system. A revised version of the index was published in 1986 (Solovay et al., 1986). The TDI, derived from standard administration of the Rorschach test, can be used to quantify the amount and severity of disordered thinking, and to identify qualitative features of thought disorder. The TDI includes 23 categories of thought slippage at four levels of severity (.25, .50, .75, 1.0). Examples of mild of thought slippage include peculiar verbalizations and mild combinatory thinking. Moderately disordered thinking includes phenomena such as looseness, idiosyncratic symbolism, and queer use of language. At the more severe end of the spectrum, one finds autistic logic, more serious forms of combinatory thinking, neologisms, and incoherence. The TDI has been shown to be a reliable and valid measure for assessing thought disorder in adults, children, and adolescents. Originally developed for clinical use, the Rorschach TDI has been extensively studied in contemporary schizophrenic research.

A large number of TDI research articles have appeared in peer-reviewed journals since the early 1980s. The TDI has been shown to discriminate between hospitalized schizophrenic patients, first-degree relatives of schizophrenics, and normal controls (Haimo & Holzman, 1979). In studies of thought disorder in children, the TDI was able to discriminate psychotic and high-risk children from normal controls and nonpsychotic hospitalized children (Arboleda & Holzman, 1985). Adolescent schizophrenic patients showed the same characteristics of thought disorder as adult schizophrenics (Makowski et al., 1997). A number of studies have used the TDI in distinguishing types of thought disorder as they apply to the differential diagnosis of schizophrenia and bipolar disorder. Holzman, Solovay, and Shenton (1985) provided evidence that the TDI reflected thought disorder across a continuum of severity. Holzman, Shenton, and Solovay (1986) used the TDI to differentiate between quantity and quality of thought disorder in manic, schizo-

phrenic, schizoaffective manic, and schizoaffective depressed patients. They found that quality of thought disorder differs in schizophrenia and mania, and the thought disorder in schizoaffective conditions resembles that of schizophrenia. Shenton, Solovay, and Holzman (1987) and Solovay, Shenton, and Holzman (1987) examined thought disorder in patients with schizoaffective disorder, manic conditions, and schizophrenia to determine whether the TDI could differentiate between diagnostic groups. They demonstrated similarities and distinctions between the diagnostic groupings using the TDI. The thought disorder of manic patients was extravagantly combinatory, usually with humor, flippancy, and playfulness. The thought disorder of schizophrenic patients on the other hand, was disorganized, confused, and ideationally fluid, with many peculiar words and phrases.

Coleman, Levy, Lezenweger, and Holzman (1996) used the TDI to quantify and classify thought disorder in individuals with schizotypal characteristics (schizophrenia-spectrum disorders). They found that individuals psychometrically identified as schizotypal displayed thought disorder similar to that shown by schizophrenic patients and some of their first-degree relatives. Hurt, Holzman, and Davis (1983) examined the usefulness of the TDI in distinguishing thought disorder across a range from subtle to flagrant. The TDI charted changes in thought disorder upon administration of antipsychotic medications and showed a high congruence with concurrently administered scales of thought disorder. Gold and Hurt (1990) found the TDI was sensitive enough to detect subtle changes in disturbed thinking following the administration of antipsychotic medications to psychiatric in-patients. Shenton, Solovay, Holzman, Coleman, and Gale (1989) used the TDI to examine first-degree relatives of schizophrenic, manic, and schizoaffective patients. In all three groups, there was a tendency for probands with higher thought disorder to have first-degree relatives with higher thought disorder.

All of the studies cited here have reported adequate to excellent interrater reliability (e.g., Coleman et al., 1993). An extensive study of reliability and clinical validity studies (effects of treatment, distinguishing mania from schizophrenia, studies of schizoaffective disorder, thought disorder in biological relatives, TDI in children and adolescents, schizophrenia spectrum disorders, right hemisphere cortical damage, and other schizophrenia research) is summarized in Holzman, Levy, and Johnston (2005).

Kleiger (1999) summarizes the Rorschach TDI research noting that it rests on a sturdy empirical foundation and has solid clinical applications. After mastering the TDI, the clinician is sensitized to the detection of the most subtle disturbances in language and thinking. Kleiger noted that the TDI shows promise “as a focal diagnostic tool to help clinicians discriminate among different types of psychotic disorders” (1999, p. 99).

Exner developed the Comprehensive System (CS) for the Rorschach (originally published in 1974) after reviewing and integrating the splintered Rorschach scoring approaches extant in the late 1960s (Exner, 1969). The Comprehensive System has been in continuous revision since the 1970s to refine its psychometric properties. A primary motivation was to establish codes and categories with strong interrater reliability. Exner gathered a group of codes for unusual verbalizations that became the basis for several clusters reflecting thought disturbance: *Deviant Verbalizations (DV)*, *Deviant Responses (DR)*, *Incongruous Combinations (INCOM)*, *Fabulized Combinations (FABCOM)*, *Contamina-*

tions (*CONTAM*), and *Autistic Logic (ALOG)*, which are weighted and summarized into the *WSUM6*, a gross measure of the amount of thought disorder present in the record. Out of these codes emerged a composite index to detect “schizophrenia” (the Schizophrenia Index [*SCZI*]: *M-*, weighted special scores, low *X+* and *F + %*, *CF + C*), high *X-%*, and absence of whole human responses. The *SCZI* showed reasonably good clinical sensitivity but also a rather high false positive rate. “Examiners using the *SCZI* to identify schizophrenia need to be alert to the distinct possibility of obtaining a ‘false positive 4’ (see Exner & Weiner, 1995, pp. 148–153; Weiner, 1998b). For this reason, the *SCZI* was replaced in the Comprehensive System by the *PTI*” (cited in Weiner, 2003). In 1990, Exner added Level 1 and Level 2 distinctions to responses based on their deviancy which improved the discriminatory power of the *SCZI* Index.

Exner replaced the Schizophrenia Index with the *Perceptual Thinking Index (PTI)* to further improve the conceptual and psychometric properties. The *PTI* is a nine variable index with five criterion tests:

1. $XA\% < .70$ and $WDA\% < .75\%$.
2. $X-\% > .29$.
3. $LV2 > 2$ and $FAB2 > 0$.
4. $R < 17$ and $WSUM6 > 12$ or $R > 16$ and $WSUM6 > 17$ (Adjust for age 13 and younger: If $R > 16$: 5 to 7 equals 20; 8 to 10 = 19; 11 to 13 = 18 and if $R < 17$: 5 to 7 = 16; 8 to 10 = 15; 11 to 13 = 14).
5. $M- > 1$ or $X-\% > .40$.

These changes have considerably reduced the relatively high false-positive rate that had characterized the *SCZI*. A *PTI* of 3 or greater “usually identifies serious adjustment problems attributable to ideational dysfunction. It is not possible for *PTI* to exceed 3 without there being an elevation of *WSum6* ... a measure of disordered thinking” (Weiner, 2003, p. 280). The *PTI* is a more sensitive CS measure of psychosis “... the more *WSUM6* exceeds the minimum criterion for a point on the *PTI*, is dominated by the more serious *Special Scores*, and includes *Level 2 Special Scores*, the more likely a respondent is to have the type of thought disorder typically observed in schizophrenia, schizoaffective disorder, delusional disorder, and paranoid and schizotypal personality disorder” (Weiner, 2003, p. 128).

One recent study investigated the *PTI* with 42 inpatient children and adolescents in a private psychiatric hospital specializing in acute short-term treatment (Smith et al., 2001). Using a greater than 4 cutoff for the five-item *PTI*, the authors found that patients with higher *PTI* scores has significantly higher findings on measures of atypicality, reality distortion, hallucinations and delusions, feelings of alienation, and social withdrawal derived from either from a parenting scale or from a self-report measure. The authors conclude that “the *PTI* may be a more pure measure of thought disorder in children and adolescents than the *SCZI*” and that it “may be assessing a more severe thought disturbance that not only has characteristics of cognitive slippage but may be marked by behavioral disturbance as well” (p. 458). The *PTI* is an indicator of the kinds of difficulties in perceptual accuracy and thinking that can have a pervasive impact on perception,

thought, reasoning, and judgment. *PTI* scores of four or five signal difficulties in perceptual accuracy and thinking and suggest that findings from the *Processing, Mediation, and Ideation* clusters (Weiner, 2003) will play an important role in aspects of the individual's functioning.

Acklin (1992) integrated innovations and developments in clinical psychoanalytic theory (Blatt's concept of the object, Urist's Mutuality of Autonomy scale, Lerner Defense scales, and Otto Kernberg's tripartite classification of personality organization: Neurotic, borderline, and psychotic personality organization (Kernberg, 1986) with CS approaches to Rorschach psychodiagnosis. Translated into contemporary Rorschach psychology, which integrates nomothetic and idiographic approaches, the psychodiagnostician examining an individual with suspected psychosis or psychotic personality organization might expect to find the following Rorschach characteristics: Loading up of *Special Scores* especially, *Level 2 Special Scores*; a heavily *Weighted Sum6*; and the *SCZI* at 4 or 5, or the *PTI* at 4 or 5; disturbances and oddities of syntax and representation indicative of thought disorder; deterioration of form level: especially human percepts; disturbances in the structural features of percepts; failure of defensive operations and utilization of primitive defenses; expression of raw, drive-laden, primary process material (Dudek, 1980; Holt, 2005) and themes of bareness, emptiness, and malevolent interaction. In his classic textbook of clinical cases, writing about the quality of verbalizations, Schafer (1948) notes that "instability of appearances" in psychotic records indicates "confusion and feelings of unreality ... this type of verbalization refers to perceptual fluidity in a setting of disorganization" (p. 309).

As this survey of the literature on the Rorschach assessment of psychosis demonstrates, the test is highly sensitive to the presence of perceptual and thought disturbance with a strong and long-standing behavioral science foundation. In conjunction with the sort of information noted previously (retrospective self-reports, police and witness reports, and treatment reports, if any), the test provides the forensic clinician with the best possible tools to determine a defendant's MSO and the degree to which psychosis played a role in the defendant's conduct.

FORENSIC OPINIONS AND COURT TESTIMONY

As noted earlier, the determination of a defendant's MSO requires careful coordination of sources of information: retrospective reports of the defendant, eye witness accounts, collateral and police observations, treatment records, and results of a psychological evaluation conducted at some time after the offense. In most respects, evaluation procedures that examine the temporal and causal associations between state of mind and psychological evaluation data to validate a forensic opinion resemble an applied clinical research design—a mini-research project (Stricker & Trierweiler, 1995; Stricker, 2006)—where hypotheses are formulated, evaluated, and results described in a disciplined scientist-practitioner methodology. This forms the basis of the expert's opinions, which may be proffered to the referring attorney or court. This raises the likelihood that forensic evaluators may have to present and defend their findings at trial.

The Rorschach test has never been without its critics. Academic psychologists (Jensen, 1965), method critics, and, more recently, informed critics of the Comprehensive System have severely criticized aspects of the test's psychometrics. During the past 10 years, Wood, Garb, and their colleagues have leveled strong and consistent criticism of the Comprehensive System (Wood, Nezworski, Lilienfeld, & Garb, 2003). Garb (1999), who completely ignores much of the literature reviewed here, called for a moratorium on the use of the test in clinical and forensic settings. Serious attacks on the Comprehensive System's credibility have come from Grove and his colleagues (Grove & Barden, 1999; Grove, Barden, Garb, & Lilienfeld, 2002; with rejoinders by Ritzler, Erard, & Pettigrew, 2002a, 2002b; Wood, Nezworski, Stejskal, & McKinzey, 2001). The response from the Rorschach community has been a vigorous, thorough-going examination of the test's reliability, validity, norms, and basis for admissibility of Rorschach testimony to court. The result has been a wave of research studies that has strengthened the test's basis, but critics, although recognizing the developments, remain unconvinced (Wood, Nezworski, Garb, & Lilienfeld, 2006).

With respect to the forensic assessment of psychosis, in contrast to criticisms of the Comprehensive System, the behavioral foundations are close to unimpeachable. The forensic clinician, however, must not only be able to use the test clinically, but also be knowledgeable and prepared to present and defend challenges to the admissibility of Rorschach testimony in court. Typically, this requires a thorough understanding of the behavioral science foundations of the testimony and recognition of the strengths and limitations of the findings.

As noted earlier, the *Frye* and *Daubert* tests and Federal Rules of Evidence (Committee on the Judiciary, 2004) are used across most jurisdictions. A review of the legal literature by Meloy, Hansen, and Weiner (1997) examined 7,934 cases in which psychologists presented Rorschach testimony, Weiner, Exner, and Sciara (1996) found only six incidents (.08%) when the test was seriously challenged, and only one time (.01%) when the testimony was declared inadmissible as evidence. A computer-based search of Rorschach legal citations between 1945 and 1995 was conducted by the authors. The Rorschach test was cited in 247 cases in state, federal, and military courts of appeal, averaging 5 times per year. Twenty-six cases were identified in which the reliability or validity of the Rorschach findings were an issue (10.5%). Despite occasional disparagement by prosecutors, the majority of the courts found the test findings to be both reliable and valid. When Rorschach testimony was limited or excluded, it was usually due to invalid inferences that the expert had made from the test data.

In a summary response to criticisms of the Rorschach, the Society for Personality Assessment (2005) recently published a "white paper" addressing the clinical and forensic use of the Rorschach, summarizing the scientific literature and examining issues of reliability, validity, and ethical use with an extensive reference list covering a whole range of psychometric, research design, and forensic issues. Weiner (chap. 6, this vol.) provides an overview for presenting Rorschach testimony in court with behavioral science resources to provide the necessary foundation for admissibility. Hilsenroth and Stricker (2004) describe in great detail the information a forensic clinician may rely on in prepar-

ing, presenting, and defending Rorschach testimony (Gacono, Evans, & Viglione, 2002). Aside from expert knowledge on the Rorschach's strengths and contribution to the forensic assessment of psychosis, the clinician needs to understand and master aspects of effective testimony (e.g., Brodsky, 1991, 2004).

CONCLUSIONS

The Rorschach test has a lengthy and sturdy history demonstrating its sensitivity and efficacy in the detection of thought disturbance associated with the major psychoses and schizophrenia-spectrum disorders. The behavioral science basis of the Rorschach's sensitivity to psychosis is one of its sturdiest scientific foundations. The skilled, disciplined Rorschach clinician who is informed and knowledgeable of the test's strengths and weaknesses is capable of making a significant contribution to the resolution of legal issues where a defendant's state of mind is in question.

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