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Association of Rorschach and MMPI Psychosis Indicators and Schizophrenia Spectrum Diagnoses in a Russian Clinical Sample

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In this study, I investigated the relationships among psychological test variables and schizophrenia spectrum diagnoses in a Russian sample of 180 psychiatric patients. Schizophrenia is understood somewhat differently in Russia than in the West. Analyses compared Rorschach (SCZI, PTI; Exner, 2001) and MMPI (Berezin, Mitroshinkov, & Sokolova, 1994) psychosis indicators (Sc, Sc3, Sc6, and BIZ) and 3 diagnostic systems: (a) Russian traditional, (b) the Russian-modified International Classification of Diseases (9th ed. [ICD-9]; Ministerstvo Zdravokhraneniya SSSR, 1982), and (c) the nonmodified ICD-10 (World Health Organization, 1992; comparable to the *Diagnostic and Statistical Manual of Mental Disorders* [4th ed.], American Psychiatric Association, 1994). Results showed modest support for the SCZI and PTI but not the MMPI indicators. While the field awaits further evidence, psychologists should proceed with caution when using the Rorschach and MMPI to assess for psychosis among Russians.

An accurate assessment of psychosis is important because it has implications for treatment strategies and because harmful iatrogenic effects such as stigma can result from labeling a condition as a psychotic state or a psychotic disorder (Link & Phelan, 1999; Ritsher, Phelan, & Bell, 2004). The Rorschach (Exner, 2001) and the Minnesota Multiphasic Personality Inventory (MMPI; Dahlstrom & Welsh, 1960; MMPI-2; Butcher, Dahlstrom, Graham, Tellegen, & Kaemmer, 1989) are widely used in clinical personality assessment, and numerous studies have supported their validity and utility for assessing psychosis (e.g., Butcher, 2000; Exner, 1993; Kleiger, 1999). Most of this evidence pertains to North American settings. The relationships among these psychological test indicators and diagnosis has been less well established in other cultural contexts such as in Russia.

In the Comprehensive System (CS) for the Rorschach, psychosis indicators include the Schizophrenia Index (SCZI) and the Perceptual-Thinking Index (PTI; Exner, 1993, 2000, 2001; Smith, Baity, Knowles, & Hilsenroth, 2001). The PTI has recently replaced the SCZI on the Structural Summary used in the CS (Exner, 2001), but the SCZI has been more widely studied.

Recent studies have supported the validity of the SCZI in differentiating between psychotic and nonpsychotic patients in clinical samples (reviewed by Jørgensen, Andersen, & Dam, 2000; also see Lindgren, 1995). Meta-analyses by

Jørgensen et al. (2000) found a sensitivity of about .70 and a specificity of about .80, with the precise figures varying depending on the criteria used for selecting studies into the meta-analysis. Recent studies (Smith et al., 2001; Stokes, Pogge, Grosso, & Zaccario, 2001) of child samples have also found support for the validity of the SCZI.

The cross-cultural validity of the SCZI has not yet been well established, but initial results are encouraging. In their review of the contemporary international literature on the diagnostic efficiency of the SCZI, Jørgensen et al. (2000) reported some data collected outside of North America. For example, in a Finnish sample, the SCZI performed well in differentiating patients with schizophrenia from a control group of patients with depression (Ilonen et al., 1999). In a small sample of Danish nonpatients, only 1 of the 27 participants had SCZI score greater than 3 (Jørgensen & Olsen, 1999). Regarding ethnic groups within North America, Meyer (2002) found that the SCZI did not overestimate and indeed might underestimate the level of psychosis among minority participants. A comparison of matched normative samples of African Americans and White Americans found that the African American group had a higher mean score on the SCZI—a statistically significant difference with an effect size (Cohen's *d*) of 0.52 (Presley, Smith, Hilsenroth, & Exner, 2001). Presley et al. judged this difference not to be clinically meaningful because as would be expected in nor-

mative samples, if the scale were functioning properly, the mean score on the SCZI was quite low in both groups, well below the clinical cutoff of > 4 . Both the group means and the difference between these means were less than 0.5. Overall, the Presley et al. study found a remarkable degree of similarity between these two American nonpatient groups on a wide array of Rorschach variables including other psychosis-related scores.

A large international collaborative project is underway to develop nonpatient norms for the Rorschach in many countries (Erdberg & Schaffer, 1999, 2001). Conference presentations by project team members suggest that the initial results regarding the cross-cultural validity of the CS are promising, but findings from this work have not yet been published, they do not pertain to clinical populations, and they do not pertain to Russia (Erdberg & Schaffer, 1999, 2001).

The PTI was recently developed as a more accurate Rorschach indicator of psychosis designed to have a lower false positive rate than the SCZI (Exner, 2000, 2001). As reviewed by Smith et al. (2001), research on the SCZI has shown unacceptably high false positive rates in child and adolescent samples. To create the PTI, the specific variables within the SCZI that had high false positive rates were revised (Exner, 2000; Smith et al., 2001). Like the SCZI, the PTI contains Rorschach variables such as poor Form Quality ($X - \%$ and $M -$) and Special Scores (e.g., $Wsum6$), which in various forms have been shown to be empirically related to thought disturbance, perceptual distortion, and cognitive slippage (Exner, 1993; Perry, Minassian, Cadenhead, Sprock, & Braff, 2003; Smith et al., 2001; Stokes et al., 2003; Viglione, Perry, & Meyer, 2003). To date, there are scant data on the psychometric properties of the PTI, but initial studies indicate that it may indeed outperform the SCZI in accurately classifying persons with and without psychosis (Exner, 2000; Smith et al., 2001). In terms of its cross-cultural validity, preliminary results from the international nonpatient samples suggest that the PTI scores are very low in each of these normative groups (Erdberg & Schaffer, 2001). In this study, I sought to contribute to this growing body of evidence on the international validity of the CS by presenting SCZI and PTI data from Russia.

On the contemporary adult American version of the MMPI, the MMPI-2 (Butcher et al., 1989), psychosis indicators include the clinical Scale 8 (Sc), the two Harris-Lingoes psychosis Content subscales, Lack of Ego Mastery, Cognitive (Sc3), and Bizarre Sensory Experiences (Sc6) as well as the Bizarre Mentation Content scale (BIZ). An extensive literature supports the validity and utility of Sc and BIZ (Butcher, 2000). For example, in a sample of mental health center outpatients, scores on Sc and BIZ significantly predicted clinician scores of psychotic symptoms (Barthlow, Graham, Ben-Porath, & McNulty, 1999). The clinical scale (Sc) is heterogeneous such that not all of its components deal directly with psychotic experiences. Therefore, the psychosis content scales afford a more precise focus on psychotic

symptoms. The BIZ Content scale has been shown to differentiate between patients with psychosis and volunteers malingering psychosis (Pensa, Dorfman, Gold, & Schneider, 1996) and between patients with schizophrenia spectrum disorders versus those with affective disorders (Weilbaeher, 2002). There has been less study of the Harris-Lingoes psychosis Content subscales, and their cross-cultural validity has been called into question (Almagor & Koren, 2001; Graham, 2000; Moore, McFall, Kivlahan, & Capestany, 1988). Studies comparing African Americans versus Euro-Americans on a variety of scales including the Sc and BIZ have found a variety of differences in mean MMPI-2 scores, many of which were interpreted as representing actual differences in psychopathology (which could be related to demographic differences or the stress of discrimination experiences, e.g.) rather than measurement bias (Arbisi, Ben-Porath, & McNulty, 2002; McNulty, Graham, Ben-Porath, & Stein, 1997; Timbrook & Graham, 1994). Arbisi et al. (2002) found some evidence of prediction bias for Sc and BIZ, but the source of the bias was primarily due to intercept differences between the groups, and the differences were small and almost all in the direction of underpredicting psychopathology among African Americans. The relevance of these findings for other ethnic groups or cultures is unknown. In this study, I investigated the use of the Sc, Sc3, Sc6, and BIZ among Russian psychiatric patients.

Anthropologic and epidemiologic studies have shown a variety of differences in the symptoms and course of schizophrenia across cultures, and the implications of these differences for psychological assessment are still far from understood (Alarcon, Westermeyer, Foulks, & Ruiz, 1999; Craig, Siegel, Hopper, Lin, & Sartorius, 1997; Hopper & Wanderling, 2000; Jablensky, 1997; Jablensky et al., 1992; Kulhara & Chakrabarti, 2001; Lee et al., 1998; Thakker & Ward, 1998). Therefore, it is not a safe assumption that tests such as the Rorschach and MMPI will function entirely equivalently in cultures in which the nature of schizophrenia itself may not be entirely equivalent. In this study, I examined the relationship among Rorschach and MMPI psychosis indicators and schizophrenia spectrum diagnosis among patients from Russia—a country where clinicians conceptualize schizophrenia somewhat differently than in the West.

In the “Moscow school” of psychiatric diagnosis, a configural approach is used for schizophrenia whereby the course and the current syndrome are considered separately, and latent forms of schizophrenia are routinely diagnosed (Calloway, 1988, 1993; Lavretsky, 1998; Smulevich, 1989; Snezhnevskii, 1983). For example, clinicians distinguish between slowly progressive, episodic, and attack-like course types in addition to the more familiar distinctions between syndrome types such as catatonic and paranoid. An adapted version of the ninth edition of the International Classification of Diseases system (ICD-9; Ministerstvo Zdravokhraneniya SSSR, 1982) incorporates these key elements of the Moscow

school of diagnosis and is widely used in Russia, but the adaptations make direct comparisons with ICD-9 data from other countries complex. For example, the Russian ICD-9 coding system includes several codes with fifth-digit specifications that are not included in the World Health Organization's version (U.S. Department of Health and Human Services, 1980). A direct translation of the 10th edition of the ICD (ICD-10; World Health Organization, 1992; comparable to the *Diagnostic and Statistical Manual of Mental Disorders* [4th ed.; *DSM-IV*], American Psychiatric Association, 1994) has recently been published in Russian, and there is debate about whether it should be culturally adapted to increase its accuracy for the Russian population or accepted verbatim to retain clear international communication (Tiganov, 1996). In this study, I characterized the relationship between psychological tests and schizophrenia spectrum disorder diagnosis according to each diagnostic system. It was beyond the scope of this study to investigate the relationship of specific diagnoses to one another or to evaluate the validity of the diagnoses. (For further details in English about the Moscow school of psychiatry and various points of view on the diagnosis of schizophrenia in the Soviet Union and Russia, see Andreyev, 1986; Calloway, 1988, 1993; Lavretsky, 1998; Reddaway, 1978; Smulevich, 1989).

All three diagnostic systems were used in this study because there was no empirical or expert consensus that any one system was preferable as the "gold standard" to use in validating the psychological measures. Therefore, this study should be understood to examine the relationships of the test indicators with the diagnoses and with one another. Using each diagnostic system, the sample was divided into groups of patients with schizophrenia spectrum disorders versus other disorders. To sharpen the contrast between groups and maximize the comparability with other studies, I also identified more homogenous groups consisting of patients with ICD-10 schizophrenia only versus ICD-10 depression only. These more narrowly defined groups are intended to provide the most rigorous and replicable of the analyses presented following about the relationship between the psychological test indicators and diagnosis.

The nature of the interrelationship between the MMPI and the Rorschach is still an open question in the mainstream literature, even aside from the added complication of culture. The topic has not yet been studied exhaustively, and summaries of existing studies have drawn disparate conclusions (e.g., Archer, 1996; Ganellen, 1996a, 1996b, 1996c; Meyer, 2000; Viglione, 1999; Wood, Nezworski, Stejskal, Garven, & West, 1999). Meyer (1997, 1999) has reported that the degree of correspondence between the two tests is much stronger among participants who have a similar response style on each test. For example, the correlation between the SCZI and Sc was statistically significant and ranged from $r = .19$ to $r = .54$ depending on the criteria used to define response style (Meyer, 1999). Meyer (1997) argued that the MMPI and Rorschach are such different approaches that "it should not

be surprising if [they] obtain qualitatively different types of information" (p. 299). This lack of equivalence would be a useful feature of the tests if they measure different aspects of the construct of interest (Weiner, 1999). In a study of personality disorders, Blais, Hilsenroth, Castlebury, Fowler, and Baity (2001) found that each test was associated with unique variance in symptom scores but that this incremental validity varied across disorders. Similarly, a study using the adolescent version of the MMPI (Archer & Krishnamurthy, 1997) found evidence supporting the incremental validity of the some Rorschach variables (Vista and Affective Ratio for predicting depression) but not others (the Depression Index for predicting depression or various variables for predicting conduct disorder). In his critique of Wood et al. (1999), Meyer (2000) reported new analyses of data he had presented earlier (Meyer, 1993) regarding the incremental validity of the SCZI above and beyond the information provided by the MMPI-2 Scale 8 and BIZ. These new hierarchical linear regression analyses supported the relationship of the BIZ and diagnosis and also showed strong support for the SCZI, with a statistically significant change in R^2 when the SCZI was introduced into the model (Meyer, 2000). I found no published study in English or Russian showing the relationship between MMPI and Rorschach psychosis indicators for use in Russia or between these indicators and diagnosis in Russia.

Psychological testing has a long history in Russia and is increasingly common (Ritsher, 1997). The MMPI is widely used in Russia both in clinical and industrial-organizational settings (Berezin, Miroshnikov, & Sokolova, 1994; Sobchik, 1990). A Russian-language version of the MMPI-2 has recently been developed in the United States, but it has not yet been fully normed or validated and has as of yet seen little use in either country (Koscheyev & Leon, 1996; G. R. Leon, personal communication, June 24, 2003). The Rorschach has been used in many cultures and is commonly used in Russia (e.g., Bepalko, 1985). However, the CS is not widely used there and its validity for use in Russia has not been well established (Ritsher, Slivko-Kolchik, & Oleichik, 2001).

OBJECTIVES

In a sample of Russian psychiatric patients, in this study, I examined the associations between Rorschach and MMPI psychosis indicators and between these indicators and schizophrenia spectrum disorder diagnoses as defined by (a) the traditional Russian/Soviet diagnostic system (the Moscow school), (b) the contemporary Western diagnostic system (the ICD-10), and (c) the mixed version (Moscow-ICD-9) commonly used in Russia. Russian norms were used for the MMPI (Berezin et al., 1994). For the Rorschach, Exner's (1991, 1993, 1995) American norms were used. The psychological testing data was collected expressly for this project and involved rigorous training and monitoring of standardized procedures (see also Ritsher et al., 2001). The diagnostic

data were collected more naturalistically in terms of being rendered independently by staff psychiatrists using the methods they ordinarily use in routine clinical practice. Thus, in this study, I evaluated the relationships among these psychological assessment tools and routine clinical diagnoses.

METHOD

Participants

Participants included 180 psychiatric patients at three sites in Moscow. This is the same sample used in a previous article (Ritsher et al., 2001) focusing on indicators of depression. Of these 180 participants, 108 were inpatients at the Russian Academy of Medical Sciences, Research Center for Mental Health (RCMH). Two comparison sites included a similar hospital (Alexeeva Mental Hospital No. 1, 50 participants) and a nontraditional outpatient clinic offering psychosocial rehabilitation modalities such as art therapy, movement therapy, and a drop-in center (Mask Therapy Institute, 22 participants). As the pattern of results was the same for each sample, they were combined to maximize statistical power. The three sites were chosen to represent a range of disorders and settings and because each was known to have a well-trained psychiatric staff familiar with all three diagnostic systems studied. Each participant had a clinically significant and disabling degree of psychiatric impairment. All patients at each site were invited to participate in the study except those judged by the attending psychiatrist to be too acutely ill to be capable of participation. Psychiatrists were instructed to exclude patients who were unable to read the questions and unable to follow along if questions were read to them or who were grossly incoherent in their speech. Otherwise, all patients were included in the study, starting with those currently enrolled at the facility and continuing with subsequent admissions until the sample was complete. Each participant gave informed consent. At each site, the tests were administered as soon as possible after intake, with half of the sample being tested within 17 days. (The range of days since admission was 0 to 1,449, but because some patients had been away on extended leaves during this index episode of treatment, the apparent time since admission was misleadingly long in some cases). The Rorschach and MMPI were administered on the same day or within a few days of one another. In some analyses I report following, sample sizes were reduced by missing data. Due to logistical difficulties on the part of the study staff and the effects of patient turnover, not every patient received all three types of diagnosis or provided useable data on both the MMPI and Rorschach. Exclusion criteria are given following with the other information on each test. Rather than using list-wise deletion of participants across all variables in the study, each analysis includes as many patients as possible to maximize the sta-

tistical power and generalizability of the results. Sample sizes for each analysis are given in the tables and text following.

Sample demographics are comparable to RCMH archival statistics and roughly comparable to nationwide demographic and diagnostic data from GosKomStat (1995, 1999), the Russian government statistical agency. Like the general population, the study sample was about half men (52%), four-fifths ethnic Russian (85%), and living in an average household size of about three (3.1). Because the study was in Moscow, participants were almost all urban (97%) and most came from households with a per capita monthly income over the equivalent of \$100 (73% of sample vs. 18% in general population). Participants' mean age was 44.0 ($SD = 11.3$, range = 18 to 62), and 41% were under age 25 compared to 36% in the general population. Compared to adults over 16 in the general population, study participants were less likely to be married (34% vs. 65%, respectively) or have children (35% vs. 83%, respectively).

Measures

Diagnosis. Staff psychiatrists with prior extensive training in all three systems diagnosed each participant using each of the systems. The psychiatrists were blind to the psychological test results until the end of the study, and the psychological assessment team was kept blind to the psychiatric diagnosis as well. For the study, psychiatrists received brief refresher training on the three systems, but financial constraints prevented the use of formal standardized psychiatric diagnostic interviews. Thus, the data may be considered representative of diagnoses given in routine clinical practice in elite research units rather than strict research diagnoses or diagnoses typical of practice throughout Russia. In that sense, this is a naturalistic study of the relationship among widely used psychological tests and routinely given expert clinical diagnoses.

Comparison groups of patients were constructed in two ways. First, each diagnostic system was used to divide the sample into those with schizophrenia spectrum disorders versus other disorders. Second, the ICD-10 system was used to create more narrowly defined groups of patients with schizophrenia versus those with depression. This second method of classification provides a sharper contrast between groups and is likely the most comparable to other studies, but it is presented second because it only involves one of the three diagnostic systems studied.

As shown on Table 1, diagnoses coded as schizophrenia spectrum disorders included all subtypes of schizophrenia and schizotypal disorder but not schizoaffective disorder or affective disorders with psychotic features. Schizotypal disorder was included because it is commonly considered to be part of the schizophrenia spectrum in Russian and Western research, and it is roughly equivalent to some of the Moscow school subtypes of schizophrenia that would be considered

TABLE 1
Classification of Disorders

ICD-10			ICD-9			Moscow School (Examples)	
Code	n	Name	Code	n	Name (Russian)	Name (International)	
<i>Schizophrenia Spectrum</i>							
Schizophrenia	20.xx	58	Schizophrenia			Schizophrenia, catatonic type	Any diagnosis containing the term <i>Schizophrenia</i> Schizophrenia, catatonic-hebephrenic form, remitting type of course, hallucinating-psychotic syndrome Schizophrenia, attack-like, catatonic-hallucinating condition Schizophrenia, progressive, attack like, acute attack Schizophrenia, attack like, catatonic attack
				1	Schizophrenia, catatonic type, with delusions and hallucinations as a variant of malignant schizophrenia		
				1	Schizophrenia, oneiroid catatonia as a variant of episodic schizophrenia	Schizophrenia, catatonic type	
				38	Schizophrenia, acute episode, progressive, episodic course	Acute schizophrenic episode	
				2	Schizophrenia, catatonic type, unspecified course	Schizophrenia, catatonic type	
				2	Schizophrenia, paranoid type, unfavorable variant	Schizophrenia, paranoid type	
				5	Schizophrenia, paranoid type, typical variant	Schizophrenia, paranoid type	
				6	Schizophrenia; paranoid type; progressive, episodic course	Schizophrenia, paranoid, with attack-like progressive course with emergent psychopathic-like defects	
				1	Transitory psychosis in the course of progressive, episodic schizophrenia	Acute schizophrenic episode	Adynamic depression in the context of episodic schizophrenia
Schizotypal disorder or equivalent	21.00	41	Schizotypal disorder			Latent schizophrenia	Schizophrenia, beginning in childhood, slowly progressive, with phases of affective cycling and changes in personality, recurring depressive phase. Slowly progressive schizophrenia, neurotic like Slowly progressive schizophrenia with residual organicity Any diagnosis not containing the term <i>schizophrenia</i>
<i>Not Schizophrenia Spectrum</i>							
Schizoaffective disorder	25.xx	22	Schizoaffective disorder			Schizophrenia, schizoaffective type	Schizoaffective psychosis, catatonic-depressed condition
Affective disorders	31.xx	8	Bipolar affective disorder			Schizophrenia, schizoaffective type	Schizoaffective psychosis, manic episode
	32.xx	15	Depressive episode			Manic-depressive psychosis, unspecified	Schizoaffective psychosis, depressive-psychotic condition
	33.xx	3	Recurrent depressive disorder			Manic-depressive psychosis, depressed type	Manic-depressive psychosis, monopolar type, depressive condition
						Manic-depressive psychosis, circular type but currently depressed	Manic depressive psychosis, circular type, depressive phase
						Manic-depressive psychosis, circular type, mixed	Atypical manic-depressive psychosis, recurrent affective-psychotic attack

All other disorders	34.00	4	Cyclothymia	296.61	4	Manic-depressive psychosis, other and unspecified	Manic-depressive psychosis, other and unspecified	Atypical manic-depressive psychosis, bipolar course, apathetic depressive syndrome
				296.81	24	Cyclothymia	Manic-depressive psychosis, other	Cyclothymia
	43.21	2	Prolonged depressive reaction	309.10	1	Prolonged depressive reaction	Prolonged depressive reaction	Protracted depressive reaction
	40.20	1	Time limited depressive reaction	300.99	1	Unspecified neurotic condition	Unspecified neurotic disorder	Neuroticlike condition with unspecified cause
	48.90	1	Neurotic disturbance, unspecified	298.40	1	Psychogetic paranoid psychosis	Psychogetic paranoid psychosis	Reactive paranoia
	60.50	1	Anankastic personality disorder	300.00	1	Anxiety neurosis (fear)	Anxiety states	Phobic neurosis, hypochondriacal syndrome.
	48.00	1	Neurasthenia	300.50	1	Neurasthenia	Neurasthenia	Neurasthenia, astheno-depressive syndrome
				301.60	1	Asthenic personality disturbance	Asthenic personality disorder	Asthenic personality breakdown, anxious-hypochondriacal neurosis, syndrome of
	60.40	5	Histrionic personality disorder	301.50	3	Hysterical personality disturbance	Hysterical personality disorder	depersonalization-derealization
								Psychopathy of the hysterical type, with affective disturbance,
	60.60	1	Anxious (avoidant) personality disorder	300.40	5	Depressive neurosis	Neurotic depression	complicated by chronic alcoholism
	60.30	1	Emotionally unstable personality disorder, impulsive type	301.30	1	Explosive personality disturbance	Explosive personality disorder	Situationally and somatogenically determined neurotic depression
				301.20	1	Schizoid personality disturbance	Schizoid personality disorder	Hysteroid personality breakdown, neurotic depression
	7.00	2	Organic personality disorder	310.19	2	Changes in personality or other type of cognitive abilities following unspecified organic illness of the brain	Cognitive or personality change of other type, following organic brain damage	Personality disturbance of the schizoid type, with overvalued ideas with philosophical content
	7.90	2	Unspecified organic personality and behavioral disorder due to brain disease, damage, and dysfunction	310.90	1	Unspecified nonpsychotic mental disorder following organic brain damage	Unspecified nonpsychotic mental disorder following organic brain damage	Organic illness of the brain following from natal and perinatal trauma with epileptic paroxysms and intellectual underdevelopment
	10.24	1	Mental and behavioral disorders due to use of alcohol, dependence syndrome	291.01	1	Typical alcoholic delirium	Alcoholic withdrawal delirium	Organic illness of the central nervous system, asthenic-depressive syndrome
				310.20	1	Postconcussional syndrome	Postconcussional syndrome	Acute alcoholic delirium, chronic alcoholism of the second level
								Sequelae of brain trauma, astheno-neurotic syndrome

Note. Moscow School = traditional Soviet/Russian diagnostic system (Snezhnevskii, 1983); ICD = International Classification of Diseases; Moscow-ICD-9 = Soviet/Russian modification of the ICD (9th ed.; Ministerstvo Zdravokhraneniya SSSR, 1982, corresponding labels from the international version of the ICD-9 are taken from World Health Organization, 1977); ICD-10 = ICD (10th ed.; Russian translation, not modified). To aid comparison across diagnostic systems, the content of each column is organized so that similar diagnoses appear on the same rows. This represents rough conceptual equivalence and does not necessarily correspond to the actual diagnoses received by individual participants across systems. Many participants had more than one diagnosis within a given diagnostic system, and many individuals were categorized as having "schizophrenia spectrum disorder" by one system but not another. Because almost no 2 participants received identical Moscow school diagnoses, they are not all listed here. However, all Moscow-ICD-9 and ICD-10 diagnoses given to any participant are listed here.

latent or prodromal schizophrenia in the West (Smulevich, 1989; also see Table 1). Schizophrenia spectrum disorders were operationalized using each diagnostic system as follows. Moscow school diagnoses were counted as schizophrenia spectrum disorders ($n = 91$ patients) if and only if the term *schizophrenia* was part of the diagnostic label, which meant that schizoaffective disorders were never included. The ICD-9 codes classified as schizophrenia spectrum ($n = 92$ patients) include all those beginning in 295, including some Russian-adapted subtypes (e.g., 295.51, slowly progressive schizophrenia with neurotic-like and psychopathic-like symptomatology), except I did not include 295.7, representing schizoaffective disorder, which was excluded from the set of schizophrenia spectrum disorders for the sake of consistency (see Table 1). The ICD-10 codes classified as schizophrenia spectrum disorders ($n = 100$ patients) in this sample included all codes beginning in 20 (schizophrenia, various subtypes) and 21.00 (schizotypal disorder), and one patient with acute delusional psychosis (23.30). Again, schizoaffective disorders were not considered to be schizophrenia spectrum disorders.

To provide an opportunity to compare more distinct groups of patients, subsamples of patients with ICD-10 schizophrenia (20.xx; $n = 58$ patients) and depression (32.xx, 33.xx, 40.20, or 43.21; $n = 24$ patients) were defined. Patients who did not have these diagnoses were excluded. For example, those with schizotypal personality disorder and schizoaffective disorder were not included in this narrowly defined schizophrenia group. Patients were excluded from the depressed group if they had a diagnosis of bipolar affective disorder, a psychotic disorder, or schizotypal personality disorder. Some patients had more than one ICD-10 diagnosis. Three patients were included in the depressed group who had depression as a secondary diagnosis after a personality disorder. No patient fit the criteria for both groups. Such narrow definitions of schizophrenia and depression could not be constructed from the ICD-9 or Moscow school diagnoses because the distinction between bipolar disorder and depression was not clear for many diagnoses such as "manic-depressive psychosis, depressive type."

The base rate of schizophrenia spectrum disorders in the sample was roughly comparable to base rates in clinical samples reviewed by Jørgensen et al. (2000). Using ICD-10 primary chart diagnoses, 51% of participants had a schizophrenia spectrum disorder (as compared to 28% to 50% in the studies reviewed by Jørgensen et al., 2000), 23% had depression, 2% had a manic or mixed episode, 14% had schizoaffective disorder, and 10% had other disorders such as alcoholism or epilepsy.

As might be expected, the level of agreement between diagnostic systems about whether a case represented a schizophrenia spectrum disorder was very high (in the "excellent" range), but the classification systems were not fully redundant. The Moscow school diagnosis of a schizophrenia spectrum disorder was more closely related to the ICD-9 ($\kappa = .92, p < .001, n =$

173) than to the ICD-10 ($\kappa = .78, p < .001, n = 173$), which would be expected because the Russian version of the ICD-9 had been modified to reflect the Moscow school of diagnosis. The ICD-9 and ICD-10 classifications were strongly related to one another ($\kappa = .87, p < .001, n = 180$).

The medication given to this group appears roughly similar to what they would receive in an American hospital. For the 74 patients with ICD-10 schizophrenia spectrum disorders for whom I was able to collect medication information, the rates for receiving various classes of agents (categorized according to Preston, 2003) are as follows: 92%, antipsychotic; 51%, side-effect medications; 44%, antidepressant; 28%, sedative; 24%, mood stabilizer; 10%, anti-anxiety; 7%, stimulant.

MMPI. The version of the MMPI used most commonly in Russian clinical work was constructed by Berezin and colleagues (Berezin, Miroshnikov, & Rozhanets, 1976; Berezin et al., 1994) who first altered the items to be more appropriate for the Russian language and culture and then re-normed the scoring key. For example, the threshold for clinical significance was substantially raised for Scales 2 and 4, and the subject of the items was changed from "I" to "you." In terms of content, Berezin et al.'s (1994) version is more similar to the MMPI-2 than to the original MMPI because most of the same changes made to the MMPI to create the MMPI-2 were also made to the MMPI to create the Berezin et al.'s (1994) version of the MMPI (for further details, see Ritsher, 1998). For example, many items in the original MMPI that pertain to bowel function and religion are absent from both the MMPI-2 and Berezin et al.'s (1994) MMPI. Berezin and several Russian psychologists (F. B. Berezin, personal communications, 1996) counseled against using the validity criteria listed in Berezin et al.'s (1976, 1994) books, stating that they were too stringent for psychiatric inpatient populations because F scores are inflated by symptoms of psychosis, and excluding psychotic patients could skew the results. American experts have also cautioned against using the validity scales to exclude data from inpatients for the same reasons (Dahlstrom & Welsh, 1960; Graham, 1987, 2000; Modlin, 1956; Walters, 1988). MMPI protocols were excluded from this study if they were incomplete or if the research assistant (RA) observed that the patient was responding in a random or otherwise grossly inappropriate manner. In this study, I used the Russian-normed K-corrected Scale 8 (Sc) and the threshold for clinical significance ($T > 65$) used in Berezin et al.'s (1976, 1994) norms. The pattern of results was the same in analyses (not shown) that used a cutting score of $T > 70$. In addition, several MMPI-2 psychosis Content scales were constructed using the Russian versions of the items composing the MMPI-2 versions of these scales. (The Russian version does not have norms for Content scales.) Because the Russian MMPI is shorter than the American MMPI or MMPI-2, not all items were available for either the MMPI Wiggins Psychoticism Content scale (Wiggins, 1969) or the MMPI-2 BIZ (Butcher et al., 1989; Graham, 1977). Because

the Wiggins Psychoticism scale has not been well validated and has been essentially supplanted by the BIZ, I did not attempt to construct a partial version of the scale (Graham, 1993). However, I did construct a 17-item version of the BIZ out of the available items, which did not include the Russian equivalent of MMPI-2 items 427, 466, 490, 508, 543, or 551. Findings using this modified BIZ scale should be considered tentative. All the items were available for two Harris-Lingoes psychosis subscales Sc3 (Lack of Ego Mastery, Cognitive, which was known as Sc2A on the original MMPI) and Sc6 (Bizarre Sensory Experiences, known as Sc3 on the original MMPI; Dahlstrom & Welsh, 1960; Graham, 2000). The scoring algorithms for these two subscales are identical for the original MMPI and the MMPI-2, but the norms are somewhat different; therefore, in the absence of Russian norms, this sample's means on Sc3 and Sc6 were compared against both American sets of norms (Dahlstrom & Welsh, 1960; Graham, 2000).

Rorschach—CS. The CS for the Rorschach is now the standard Rorschach scoring system in North America and is the subject of a vast literature examining its reliability, validity, and utility (Exner, 1995; Ganellen, 2001; Meyer & Archer, 2001; Wood, Lilienfeld, Nezworski, & Garb, 2001). Although the overall validity and utility of the CS is the subject of intense debate, most experts agree that the system is complex and that there is more evidence for the validity of some components versus others (Meyer & Archer, 2001; Wood, Lilienfeld, Garb, & Nezworski, 2000). In particular, the SCZI has received more empirical support than its counterpart for depression, the Depression Index (DEPI; Jørgensen et al., 2000; Meyer, 2000; Vincent & Harman, 1991). Initial evidence on the PTI suggests that it is likely to be more effective than the SCZI (Exner, 2000; Smith et al., 2001). Like the CS as a whole, the SCZI and PTI are based on American norms, and their cross-cultural validity for assessing psychosis in Russians is unknown.

I adhered strictly to American standards for Rorschach administration and scoring, using the version of the CS that was contemporary at the time of data collection (Exner, 1993). Rorschach protocols were excluded if the number of responses was less than 14 or if any of the cards were refused. Training of the Russian RAs (all advanced clinical psychology students at the elite Moscow State University) was conducted using materials cowritten and supervised by an experienced Rorschach trainer (R. Dies) in consultation with J. Exner (personal communications with R. Dies and J. Ritsher, 1995–1996). The 10 Russian RAs achieved a minimum of 82% agreement with one another in their coding of three protocols at the end of their training. (Kappas were not calculated for these because there were only three protocols, making it difficult to establish expected rates of chance agreement.) The three most highly skilled RAs who also collected the majority of the data achieved 92% agreement with one another. These figures characterize the quality of each

RA's ability to score the protocols independently, but independent scores were never used in the data analysis. To maximize the influence of (a) Rorschach expertise and (b) culture and language expertise on the quality of the data, each protocol was jointly scored by me and an RA. Other research team members were consulted if necessary to resolve discrepancies. Thus, instead of evaluating the quality of scores rendered by individual RAs, it is more appropriate to measure scoring accuracy by comparing the research team's final consensus scores against an expert's scores. However, another Russian-speaking expert was not available, so it was necessary to use translated protocols for this procedure. Accordingly, a set of 20 randomly chosen final protocols, two originating from each RA, was translated into English and scored by an expert (R. Dies). Across the 20 protocols, the total number of responses scored was 377. Overall cross-language, interrater reliability was 87% agreement. For the main Rorschach variables shown in Exner's (1993) reference samples, the average intraclass correlation coefficient across languages was .78 ($n = 20$ protocols, 111 variables). (The 111 variable names can also be seen in Table 7). As shown on Table 2, the cross-language, interrater agreement was also good for the SCZI (total score intraclass correlation coefficient [ICC] = .88; $p < .01$, $n = 20$; positive score $\kappa = .69$, $p < .05$, $n = 20$) and the PTI (ICC = .94, $p < .01$, $n = 20$). When examining interrater reliability with nontranslated protocols, kappa under .40 is typically considered to be "poor" and kappa between .40 and .59 is considered to be "fair" (Cicchetti, 1994). Various authors have characterized kappa as "good" if it is from .60 to .74 or from .60 to .79 and characterized it as "excellent" or "nearly perfect" when higher than this threshold (at least .75 or .80, depending on the author; Cicchetti, 1994). Table 2 presents the kappa and ICCs for the components of the SCZI and PTI, most of which are in the excellent range ($Mdn = .78$). For both kappa and ICC, the biggest apparent discrepancies were on variables most likely to be affected by translation ambiguities such as the Special Scores. These scores are also included in the SCZI and PTI, but again, the translated protocols were not used to produce the SCZI and PTI data that are presented in the results following. Given that the data used for the substantive analyses were not based on translations, it is reasonable to assume that the results of these scoring reliability analyses are underestimates of the true quality of the team's consensus scoring. Indeed, almost all of the scoring discrepancies between the team's scores and the expert's scores were attributable to differences in shades of meaning introduced by the translation. Translated protocols were used only for these interrater agreement analyses, not for any of the results presented next.

RESULTS

The concurrent validity of the Rorschach psychosis indicators (SCZI and PTI) was tested against the Russian MMPI

TABLE 2
Interrater Agreement Between Team-Scored
Russian Original Versus Expert-Scored
English Translation of 20 Randomly Chosen
Protocols

Variable	κ or ICC (Deflated by Translation)
X + %	ICC = .87
S-%	ICC = .96
FQ-	ICC = .88
Fqu	ICC = .70
Sum Level 2	ICC = .57
FAB2	ICC = .57
Raw Sum 6	ICC = .76
Wsum6	ICC = .80
M-	ICC = .75
XA%	ICC = .87
WDA%	ICC = .81
X-%	ICC = .86
R	ICC = 1.00
SCZI total	ICC = 0.88
PTI total	ICC = 0.94
SCZI Condition 1	κ = .59
SCZI Condition 2	κ = .86
SCZI Condition 3	κ = .50
SCZI Condition 4	κ = .64
SCZI Condition 5	κ = .60
SCZI Condition 6	κ = .48
SCZI Positive	κ = .69
PTI Condition 1	κ = .83
PTI Condition 2	κ = .86
PTI Condition 3 ^a	
PTI Condition 4	κ = .60
PTI Condition 5	κ = .48

Note. The expert rater coded translated protocols. Translated protocols were not used for any of the other analyses conducted for the study. The coefficients likely represent an underestimate of the true quality of the scoring because of the ambiguity introduced by the translation. Across the 20 protocols, the total number of responses coded was 377. ICC = intraclass correlation coefficient; SCZI = Schizophrenia Index; PTI = Perceptual-Thinking Index.

^aFor PTI Condition 3, kappa was not calculable because of insufficient variability across the 20 protocols.

psychosis indicators (Sc, BIZ, Sc3, and Sc6). Because the two methods are so different (Ganellen, 1996a, 1996b, 1996c; Meyer, 1996; Nichols, 1996) and because recent reviews (e.g., Archer, 1993, 1996; Meyer, 1997) have failed to show consistent agreement between them, a large correlation was not expected. Results for this sample indicate that there was essentially no relationship between any of the Rorschach and MMPI indicators of psychosis (range of $r = -0.06$ to 0.14 , $p > .05$, $n = 148$; Table 3). Categorical versions of these variables ($Sc > 65$ and $SCZI > 3$) also failed to agree ($\kappa = .02$, $p > .05$, $n = 147$).

The Rorschach and MMPI psychosis indicators were also compared to the three diagnostic systems. For continuous variables, none of the Rorschach or MMPI variables showed the expected association with schizophrenia spectrum diagnoses for any of the diagnostic systems (Table 4). The same pattern of results held for the more narrowly defined ICD-10 schizophrenia versus depression subsamples (Table 4). The

two statistically significant associations shown on Table 4 are opposite the predicted direction. For the categorical variables, diagnostic efficiency statistics were calculated (Table 5; Kessel & Zimmerman, 1993). For each type of diagnosis, the SCZI and the PTI had higher positive predictive values and higher specificity scores than the MMPI Sc and lower sensitivity and false positive rates (Table 5). The SCZI and PTI had statistically significant associations with several of the diagnostic categorizations ($\kappa = .10$ to $.15$, $p < .05$; Table 5), but these associations were all low in magnitude ($\kappa < .40$). The kappas were not statistically significant for any of the analyses involving the MMPI Sc or the Moscow-ICD-9 diagnostic system.

Descriptive statistics from this sample were compared to other published statistics on psychosis indicators among psychiatric patient samples. For comparability with studies using the American diagnostic system, the group of patients with ICD-10 schizophrenia spectrum disorder ($n = 93$) was used for these analyses. Cohen's d was calculated by dividing the mean difference by the pooled standard deviation while adjusting for unequal sample sizes by using the following formula in which the subscripts "a" and "b" refer to the two samples.

$$d = (\text{mean}_a - \text{mean}_b) / \sqrt{((n_a \times sd_a^2) + (n_b \times sd_b^2)) / (n_a + n_b)}$$

This sample's Rorschach scores were compared against published Rorschach scores from other samples of persons with psychotic disorders. The largest of these is Exner's (1993, 2001) Schizophrenia sample ($n = 320$). For the SCZI, the mean score in this Russian sample was 2.62 ($SD = 1.7$). Exner (1993, 2001) has not provided a mean score for the SCZI, but Jørgensen et al. (2000) did report mean scores from several other samples of adults with psychosis. As shown in Table 6, the value for SCZI in my sample was

TABLE 3
Correlations (Pearson's r) Between
Rorschach and MMPI Psychosis Indicators

Rorschach Variable	MMPI Variable			
	Sc ^a	Sc3 ^b	Sc6 ^c	BIZ ^b
SCZI	.08	-.06	.06	.08
PTI	.14	-.05	.10	.11

Note. MMPI = Minnesota Multiphasic Personality Inventory; SCZI = Rorschach Schizophrenia Index (Exner, 1993); PTI = Rorschach Perceptual-Thinking Index (Exner, 2000); Sc = Russian MMPI clinical scale for psychosis (Berezin, Miroshnikov, & Sokolova, 1994); Harris-Lingoes Sc3 = Lack of Ego Mastery, Cognitive (Graham, 2000); Harris-Lingoes Sc6 = Bizarre Sensory Experiences (Graham, 2000); BIZ-17 = Bizarre Mentation Content scale (Graham, 2000) except items 427, 466, 490, 508, 543, and 551, which were not available on the Russian MMPI (Berezin et al., 1994), leaving 17 of the original 23 items.

^a $n = 148$. ^b $n = 147$. ^c $n = 144$.
 $p > .05$ for each analysis.

TABLE 4
Association of Rorschach and MMPI Psychosis Indicators With Diagnosis of a Schizophrenia Spectrum Disorder (t Tests)

Indicator	Moscow School						Moscow ICD-9						ICD-10						ICD-10 (Narrow)							
	Schizophrenia Spectrum			Not Schizophrenia Spectrum			Schizophrenia Spectrum			Not Schizophrenia Spectrum			Schizophrenia Spectrum			Not Schizophrenia Spectrum			Schizophrenia Spectrum			Depression				
	n	M	SD	n	M	SD	r	n	M	SD	r	n	M	SD	r	n	M	SD	r	n	M	SD	n	M	SD	r
Rorschach variables	84			73				84					92			72			55			22				
SCZI continuous	2.52	1.68		2.36	1.60	0.05		2.56	1.66		1.59	0.09	2.62	1.66		2.15	1.55	0.14	2.55	1.71		2.00	1.34	0.15		
PTI	1.50	1.56		1.34	1.47	0.05		1.54	1.53		1.24	0.09	1.55	1.56		1.18	1.41	0.12	1.55	1.59		1.14	1.08	0.13		
MMPI variables	78			71				79					87			65			51			23				
Sc continuous	78.18	22.72		80.46	22.69	-0.06		78.06	22.58		80.35	22.47	-0.06	79.79	22.39		78.36	22.75	0.02	77.47	19.70		75.88	20.36	0.04	
Harris-Lingoes Sc3	3.87	2.63		4.39	2.46	-0.11		3.77	2.63		4.45	2.41	-0.14	3.99	2.58		4.25	2.50	-0.06	3.57	2.59		4.18	2.26	-0.11	
Harris-Lingoes Sc6	6.73	4.56		8.49	4.71	-0.19*		6.60	4.54		8.51	4.61	-0.22*	7.09	4.58		8.06	4.74	-0.11	7.14	4.20		7.23	4.49	-0.01	
BIZ-17	4.97	3.86		5.59	3.69	-0.09		4.76	3.79		5.73	3.66	-0.14	4.92	3.75		5.63	3.74	-0.10	5.02	3.76		4.32	2.75	-0.09	

Note. Negative values of *r* are opposite the predicted direction of association. MMPI = Minnesota Multiphasic Personality Inventory; ICD = International Classification of Diseases; SCZI = Rorschach Schizophrenia Index (Exner, 1993); PTI = Rorschach Perceptual-Thinking Index (Exner, 2000); Sc = Russian-normed MMPI clinical scale for psychosis (Berezin, Mirosnikov, & Sokolova, 1994); Harris-Lingoes Sc3 = Lack of Ego Mastery, Cognitive (raw scores are shown because there are no Russian norms); Harris-Lingoes Sc6 = Bizarre Sensory Experiences (raw scores are shown because there are no Russian norms); BIZ-17 = Bizarre Mentation content scale, except items 427, 466, 490, 508, 543, and 551, which were not available on the Russian MMPI (Berezin et al., 1994), leaving 17 of the original 23 items (raw scores are shown because there are no Russian norms); Moscow School = traditional Soviet/Russian diagnostic system (Snezhnevskii, 1983); Moscow-ICD-9 = Soviet/Russian modification of the ICD (9th ed.; Ministerstvo Zdravokhraneniya SSSR, 1982); ICD-10 = ICD (10th ed.; Russian translation, not modified); ICD-10 (Narrow) = diagnosis of schizophrenia or depression.

**p* < .05.

TABLE 5
Diagnostic Efficiency of Rorschach and MMPI Psychosis Indicators

Indicator	Sensitivity (%)	Specificity (%)	Hit Rate (%)	False Positive (%)	PPV (%)	NPV (%)	κ	n	Schizophrenia Spectrum Disorder	
									n	%
Moscow School										
SCZI > 3	31	80	54	10	63	50	.09	158	85	54
PTI > 2	29	81	53	9	64	50	.10*	158	85	54
Sc > 65	64	28	47	34	49	42	.08	149	78	52
Moscow-ICD-9										
SCZI > 3	31	80	55	10	62	52	.10	165	85	52
PTI > 2	29	81	54	9	63	52	.11	165	85	52
Sc > 65	65	28	47	35	49	43	-.07	153	79	52
ICD-10										
SCZI > 3	32	83	54	7	71	49	.14*	165	93	56
PTI > 2	30	83	53	7	70	48	.12*	165	93	56
Sc > 65	69	33	53	29	57	45	.02	153	87	57
ICD-10 (schizophrenia versus depression only, narrowly defined)										
SCZI > 3	31	91	48	3	89	34	.15*	77	55	71
PTI > 2	31	91	48	3	90	35	.15*	77	55	71
Sc > 65	65	30	34	22	67	28	-.05	74	51	69

Note. MMPI = Minnesota Multiphasic Personality Inventory; Moscow School = Traditional Soviet/Russian diagnostic system (Snezhnevskii, 1983); SCZI = Rorschach Schizophrenia Index (Exner, 1993); PTI = Perceptual-Thinking Index (Exner, 2000); Sc = Russian MMPI clinical scale for psychosis (Berezin, Miroshnikov, & Sokolova, 1994); Moscow-ICD-9 = Soviet/Russian modification of the International Classification of Diseases (ICD; 9th ed.; Ministerstvo Zdravokhraneniya SSSR, 1982); ICD-10 = ICD (10th ed.; Russian translation, not modified).

* $p < .05$.

TABLE 6
Rorschach Scores in the Present Schizophrenia Spectrum Disorder Sample Compared to Other Psychotic Patient Samples

Study	Variable	Comparison Sample			This Sample ^a			Effect Size (Cohen's <i>d</i>)
		<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	
Meyer (1993) ^b	SCZI	3.18	—	39	2.65	1.67	93	—
Netter & Viglione (1994) ^b	SCZI	4.10	1.92	20	2.65	1.67	93	-0.84
Hilsenroth, Fowler, & Padawer (1998) ^b	SCZI	4.50	1.66 ^c	33	2.65	1.67	93	-1.11
Bannatyne, Gacono, & Greene (1999) ^b	SCZI	2.47	1.54	180	2.65	1.67	93	0.11
Meyer (2000) ^b	SCZI	3.32	1.77	158	2.65	1.67	93	-0.39
Smith, Baity, Knowles, & Hilsenroth (2001) ^d	SCZI	2.74	1.80	42	2.65	1.67	93	-0.05
Smith et al. (2001) ^d	PTI	1.60	1.70	42	1.57	1.56	93	-0.02
Smith et al. (2001) ^d	M-%	1.04	1.40	42	0.94	1.36	93	-0.07
Smith et al. (2001) ^d	X - %	28.64	13.30	42	23.27	14.18	93	-0.39
Ben-Porath, Butcher, & Graham (1991) ^e	Sc (men)	81.50	20.40	87	83.69	22.24	42	0.10
Ben-Porath et al. (1991) ^e	Sc (women)	71.40	16.20	73	76.66	20.39	42	0.29
Dahlstrom & Prange (1960) ^f	Sc (men)	70.00	15.00	14	83.69	22.24	42	0.66
Dahlstrom & Prange (1960) ^f	Sc (women)	76.00	14.00	36	76.66	20.39	42	0.04
Gough (1956) ^f	Sc	76.80	16.60	22	79.78	22.40	87	0.14
Schmidt (1956) ^f	Sc	78.50	18.60	13	79.78	22.40	87	0.06
Wauck (1950) ^f	Sc	69.40	16.40	80	79.78	22.40	87	0.53

Note. Calculations for Cohen's *d* utilized pooled *SD* and adjusted for unequal sample sizes. SCZI = Rorschach Schizophrenic Index; PTI = Rorschach Perceptual-Thinking Index; Sc = Russian MMPI clinical scale for psychosis.

^aICD-10 definition, see Table 1. ^bAs reported in Jørgensen, Andersen, & Dam (2000). ^c*SD* provided by M. J. Hilsenroth, personal communication, July 2003. ^dA child and adolescent sample. ^eThis study used the MMPI-2. ^fThese studies used the original MMPI.

most similar to that found by Bannatyne, Gacono, and Greene (1999; $d = 0.11$, $n = 180$). Compared to Meyer's (as cited in Jørgensen et al., 2000; $n = 158$) sample, there was a small effect size difference of $d = -0.39$. There was a large effect size difference between the mean SCZI score found in my sample versus the two small samples for which Cohen's d could be computed (Hilsenroth, Fowler, & Padawer, 1998; $n = 33$, $d = -1.11$; Netter & Viglione, 1994; $n = 20$, $d = -0.84$). In three of these four comparisons, the value of d is negative, indicating that my sample appeared less disturbed than the other samples. Because I could find no other published data showing mean PTI scores for adults with psychosis, Table 6 also compares my sample means to those found in a sample of children and adolescents with psychosis (Smith et al., 2001). My sample means were comparable for the PTI ($d = -0.02$) and $M - \%$ ($d = -0.07$), but there was a small effect size difference of $d = -0.39$ for $X - \%$ such that my sample appeared less disturbed than the child and adolescent sample (Smith et al., 2001). Exner (2001) gave frequency data for the PTI for two samples of adults with schizophrenia: those with a Lambda score of at least 1.0 ($n = 128$) and those with a Lambda less than 1.0 ($n = 200$). Dividing my sample the same way yields $n = 34$ with Lambda ≥ 1.0 and $n = 59$ with Lambda < 1.0 . Exner (2001) reported a PTI score of at least 3 for 72% of the high-Lambda sample and 74% for the low-Lambda sample as compared to 24% and 34% for my samples. Thus, both of my samples appeared less disturbed than Exner's (1993, 2001) schizophrenia samples on the PTI.

For the MMPI, the mean T scores on Sc were 83.69 ($SD = 22.24$) for men in my sample with ICD-10 schizophrenia spectrum disorder ($n = 42$) and 76.66 ($SD = 20.39$, $n = 42$) for women using the Russian norms (Berezin et al., 1994). In Table 6, these values are compared to American T scores reported for the MMPI-2 (Ben-Porath, Butcher, & Graham, 1991) and for the original MMPI, all for inpatient samples with schizophrenia or related psychoses using the relevant American norms (Dahlstrom & Prange, 1960; Gough, 1956; Schmidt, 1956; Wauck, 1950). As shown on Table 6, there were effect size differences between these samples ranging from negligible to medium (Cohen's d ranged from 0.04 to 0.66), all in the direction of my sample appearing somewhat more disturbed than the other sample. On the Sc, my sample of men appeared more disturbed than Dahlstrom and Prange's (1960) sample ($d = 0.66$), but my sample of women did not ($d = 0.04$). Because there are no Russian norms for the psychosis subscales Sc3, Sc6, or BIZ (and because I did not have the complete BIZ item set), I did not calculate effect size differences between my sample's T-scores on these indicators to those of any other samples. McFall, Moore, Kivlahan, and Capestany (1988) reported Harris-Lingoes subscale scores for a sample of 45 male inpatients with psychosis. For the Lack of Ego Mastery-Cognitive scale (referred to as Sc3 on the MMPI-2

and in this article), McFall et al. reported a mean of $T = 69.80$ ($SD = 15.6$). In my sample, the raw score mean for men ($n = 42$) was 3.88 ($SD = 2.45$), which would represent a T score of about 66 on the MMPI-2 (Graham, 2000) and would also represent a T score of about 66 on the original MMPI (Dahlstrom & Welsh, 1960). McFall et al. reported an average score for Bizarre Sensory Experiences (Sc6) of $T = 72.38$ ($SD = 13.8$). In my Russian sample, the mean for Sc6 for men ($n = 40$) was 4.17 ($SD = 2.62$), which would represent a much lower T score of about 60 on the MMPI-2 (Graham, 2000) or a T score of about 56 on the original MMPI (Dahlstrom & Welsh, 1960). Thus, my male sample appears less disturbed than McFall et al.'s (1988) sample on Sc3 but not on the Sc6. There are apparently no comparison samples of women inpatients with psychosis using these subscales. For this Russian sample, the mean raw score for women ($n = 42$) on Sc3 was 4.17 ($SD = 2.62$), which corresponds to a T score of 66 on the MMPI (Dahlstrom & Welsh, 1960) or 67 on the MMPI-2 (Graham, 2000). On Sc6, the mean for this Russian female sample ($n = 42$) was 8.64 ($SD = 6.64$), which corresponds to a T score of 75 on the MMPI (Dahlstrom & Welsh, 1960) or 81 on the MMPI-2 (Graham, 2000). Thus, the average scores on these subscales for women in this Russian inpatient psychosis sample are in the clinically significant range according to these American norms.

Next, this Russian sample's mean scores on 111 Rorschach variables were compared against the means and standard deviations from Exner's (1993) reference group of 320 inpatients with schizophrenia. Again, these analyses include the 93 participants with ICD-10 schizophrenia spectrum disorders. The 111 mean differences were all less than one pooled standard deviation in magnitude (Cohen's $d < 1.0$). The range of Cohen's d was -0.98 to 0.96 ($M = -0.03$, $SD = 0.38$, $n = 111$). For absolute values of Cohen's d , 45% of the values showed no appreciable difference (0.00 to 0.19), 36% of the values were in the "small" range (.20 to .49), 15% were in the "medium" range (0.50 to 0.79), and 4% were in the "large" range ($\geq .80$; $M = 0.29$, $SD = 0.23$, $n = 111$). Details are shown in Table 7. Exner (1993) warned that many of the mean values in the schizophrenia reference group are not normally distributed. This study's Cohen's d scores are not distributed differently for these two subsets of variables (those marked by Exner, 1993, as potentially unreliable and those left unmarked) than for the entire set of 111 variables (further details not shown but available from the author). The group of variables especially relevant to psychosis showed moderate to large effect size differences between the two groups such that my sample appears to be less disturbed than Exner's (1993) sample. Specifically, the average absolute effect size difference for FQu, FQ-, MQ-, $X - \%$, Xu%, FAB2, Raw Sum6, Level 2 Special Scores, and WSUM6 is medium in magnitude ($d = 0.72$, $SD = 0.15$, $n = 9$ variables).

TABLE 7
Means and Standard Deviations for 111
Rorschach Variables in the Present Sample
of Patients With ICD-10 Schizophrenia
Spectrum Disorder^a and Cohen's *d* Values
Comparing this Sample to Exner's (1993)
Schizophrenia Inpatient Reference Sample^b

<i>Variable</i>	<i>M</i>	<i>SD</i>	<i>Cohen's d^c</i>
R	21.63	8.20	-0.21
W	9.71	6.00	0.17
D location	7.66	5.32	-0.34
Dd	4.27	4.18	-0.12
S	2.23	2.26	-0.22
DQ+	6.08	3.84	-0.2
DQo	13.61	6.85	-0.17
DQv	1.52	2.10	0.05
DQv/+	0.43	0.88	0.38
FQX+	0.16	0.58	0.23
FQXo	9.03	3.75	0.03
FQXu	6.68	4.43	0.51
FQX-	5.25	4.03	-0.73
FQXnone	0.52	0.90	-0.10
MQ+	0.06	0.32	0.03
MQo	1.78	1.44	-0.33
MQu	1.03	1.39	-0.02
MQ-	0.94	1.36	-0.66
MQnone	0.06	0.36	-0.04
S-	0.92	1.28	-0.41
M	3.88	3.09	-0.52
FM	2.87	2.53	0.19
m	1.44	1.55	0.21
FM + m	4.31	3.32	0.24
FC	2.01	1.83	0.28
CF	1.34	1.53	0.07
C	0.47	0.76	0.07
Cn	0.04	0.20	-0.07
Sum Color	3.87	2.97	0.23
WSum C	3.06	2.48	0.19
Sum C'	1.95	2.06	0.27
Sum T	0.60	1.16	0.14
Sum V	0.23	0.53	-0.34
Sum Y	1.20	1.44	-0.38
Sum Shading	3.98	3.34	-0.16
Fr + rF	0.31	0.72	0.26
FD	1.01	1.49	0.35
F	9.25	5.36	-0.20
Pair	7.00	4.66	-0.32
3r(2)/R (= ego)	0.37	0.17	-0.06
Lambda	1.00	0.86	-0.18
EA	6.94	4.30	-0.33
es	8.29	5.93	0.00
D	-0.43	1.47	-0.37
AdjD	0.05	1.25	-0.45
a (active)	3.98	3.39	-0.40
p (passive)	4.28	3.4	0.01
Ma	1.98	2.12	-0.53
Mp	1.94	1.98	-0.33
Intellect	3.31	3.72	0.82
Zf	12.32	6.13	-0.06
Zd	-1.00	4.74	-0.48
Blends	3.96	3.34	-0.08
Col Shd Bl	0.56	0.87	-0.09
Afr	0.43	0.17	-0.46
Populars	5.34	1.96	0.33
X + %	0.44	0.16	0.29
F + %	0.45	0.23	0.17
X - %	0.23	0.14	-0.98

(continued)

TABLE 7 (Continued)

<i>Variable</i>	<i>M</i>	<i>SD</i>	<i>Cohen's d^c</i>
Xu%	0.30	0.15	0.92
S - %	0.18	0.24	-0.10
Isolate	0.16	0.12	0.11
H	2.47	2.00	-0.30
(H)	1.51	1.54	-0.06
Hd	1.08	1.39	-0.39
(Hd)	0.48	0.76	-0.31
Hx	0.76	1.76	0.66
All H Cont	5.54	3.35	-0.47
A	8.06	4.03	-0.04
(A)	0.97	1.26	0.46
Ad	1.91	2.12	-0.06
(Ad)	0.28	0.56	0.02
An	0.89	1.06	-0.06
Art	1.39	1.85	0.43
Ay	0.70	1.01	0.77
Bl	0.19	0.54	-0.18
Bt	1.45	1.59	0.53
Cg	2.14	1.99	0.16
Cl	0.15	0.44	-0.18
Ex	0.10	0.33	-0.03
Fi	0.39	0.78	0.02
Fd (food)	0.17	0.46	-0.24
Ge	0.08	0.34	-0.20
Hh	1.15	1.37	0.74
Ls	0.43	0.77	-0.01
Na	0.71	0.93	-0.01
Sc	0.78	1.18	0.35
Sx	0.27	0.84	-0.56
Xy	0.17	0.67	0.02
Idio	1.67	1.70	-0.40
DV	1.47	1.56	0.54
INCOM	1.02	1.45	-0.35
DR	1.71	1.96	0.46
FABCOM	0.78	1.15	0.06
DV2	0.20	0.52	-0.14
INC2	0.35	0.70	-0.54
DR2	0.90	2.23	-0.37
FAB2	0.43	0.96	-0.76
ALOG	0.74	1.31	-0.14
CONTAM	0.10	0.33	-0.08
Sum6 Sp Sc	7.72	6.08	0.65
Sum6 Sp Sc2	1.89	2.88	-0.72
WSum6	26.43	24.44	-0.55
AB	0.61	1.44	0.53
AG	0.97	1.51	-0.16
CONFAB	0.11	0.38	0.21
COP	1.01	1.14	0.19
CP	0.04	0.20	0.00
MOR	2.30	2.22	0.45
PER	1.06	1.74	-0.08
PSV	0.89	1.52	0.96

Note. ICD-10 = International Classification of Diseases (10th ed.; Russian translation, not modified).

^a*N* = 93. ^b*N* = 320. ^cCohen's *d* effect size values reflect comparisons to the *M*s and *SD*s listed in Exner (1993, pp.306-310). Calculations for Cohen's *d* utilized pooled *SD* and adjusted for unequal sample sizes. Negative values indicate that this sample mean is lower than the mean reported for Exner's sample.

DISCUSSION

In this study, I found some modest support for the validity of the CS for detecting psychosis in Russians. Results were less encouraging for the MMPI psychosis indicators, which had little or no positive relationship with the Rorschach psychosis indicators or with any of the diagnostic systems tested.

The diagnostic efficiency statistics found for the SCZI in this study (Table 5) were weaker than those found by other studies reviewed by Jørgensen et al. (2000). These results were not substantially improved by sharpening the contrast between the diagnostic categories. For discriminating between my most narrowly defined samples of participants with ICD-10 schizophrenia versus those with ICD-10 depression, the SCZI and PTI had high specificity, high positive predictive value, low false positive rates, and statistically significant kappa coefficients (Table 5). However, the sensitivity, hit rate, negative predictive value, and kappa values were all very low (Table 5), and the two groups did not have statistically significantly different scores on the SCZI or PTI (Table 4). Moreover, the PTI and SCZI were not related to the MMPI psychosis indicators studied (Table 3). For discriminating between my more broadly defined samples of participants with and without schizophrenia spectrum disorders, the results were similar. The diagnostic efficiency statistics were slightly stronger for ICD-10 diagnoses than for the other two diagnostic systems (Table 5).

For this sample of participants with ICD-10 schizophrenia spectrum disorders, the sample means on 111 Rorschach variables were all within one pooled standard deviation of Exner's (1993) schizophrenia reference group's means (Table 7). This indicates that the participants were not reacting to the inkblots in a dramatically different way than expected. Because Exner (1991) and others (e.g., Dies, 1995) caution against using the reference samples as norms except to look for "extreme deviations from expected values" (Dies, 1995, p. 114), more elaborate comparisons between the Russian and American sets of Rorschach results were not made. Still, these Rorschach results indicate that there were clinically significant differences between the two samples. Although very few (4%) of the differences were in the large range, just over half (55%) of the variables did show a difference that was at least in the small range. The average difference for the psychosis-related variables was in the medium range, suggesting that this sample was somewhat less disturbed than Exner's (1993, 2001) reference group. Similarly, the Russian sample appeared less disturbed on the Rorschach than all but one of the comparison samples shown in Table 6. It appears that some of the strongest differences between the samples were along psychosis-related dimensions. According to the only other available indicator of psychosis, the MMPI, by contrast, the Russian sample appeared more disturbed than other comparison samples with psychosis (Table 6). Without additional indicators or comparison groups, this question about the sample's level of pathology cannot be pursued further with this sample.

Overall, the Rorschach results indicate that in Russia, the SCZI and PTI may do some good in helping to identify patients who might have a schizophrenia spectrum disorder, but they are unlikely to do harm by leading the clinician to give an erroneous diagnosis of a schizophrenia spectrum disorder.

Although the difference was slight enough that the finding should be considered tentative until it can be replicated, it is interesting that the test for which I used only Western norms (the Rorschach) had its strongest associations with the most Western of the diagnostic systems studied (the ICD-10). Future studies might investigate in more detail the relationships between the underlying constructs reflected in the diagnoses and the psychological tests. For example, additional measures could be used that more directly pinpoint differences between the Moscow school and ICD-10 conceptions of schizophrenia. A study could examine whether the Rorschach or other Western psychological tests are more weakly related to the specific diagnoses that are most discrepant from the current Western system such as latent schizophrenia. It would be important for such a study to include other measures of current functioning and to have independently rendered diagnoses. In this study, I was unable to determine the extent to which the diagnoses using each system were rendered independently from one another. Assuming that these results reflect the effect of real differences between diagnostic systems, they suggest that the aspects of psychosis measured by the SCZI and PTI are more related to the contemporary international diagnostic system than to the older Russian/Soviet systems.

It is also possible that developing Russian Rorschach norms could potentially improve the test's relationship to diagnosis. There were indications that cultural differences might have affected the scoring. For example, a two-headed eagle is a prominent feature of the seal of Russia, which has recently become almost as ubiquitous as the hammer and sickle was during the Soviet period. The two-headed eagle was a common response to several of the Rorschach cards, but our strict adherence to the American scoring rules meant that it had to be coded as an incongruous combination (INCOM) unless the participant specified that it was a symbol rather than an actual bird with two heads. The Russian Rorschach literature indicates that the most common response to Card IV is an animal pelt rather than the human or human-like figure scored as Popular in the CS (Bespalko, 1978, 1985). New norms (i.e., a Russian Form Quality table) might allow the scoring to more accurately reflect the degree to which a given response is deviant from cultural norms. Despite the unknown degree of inaccuracy introduced by cultural differences, this study provides initial evidence supporting the utility of the American-normed SCZI and PTI in Russia.

The MMPI psychosis indicators showed none of the predicted relationships with the Rorschach psychosis indicators or with any of the diagnostic systems tested. Even though the MMPI has Russian norms, it was poorly related to both Russian-style and Western-style diagnoses. (Note that the statis-

tically significant results for the MMPI in Table 4 are the reverse of the expected direction, reflecting disagreement).

In a previous study (Ritscher et al., 2001) using the same sample and the same analytic strategy, the Russian MMPI was significantly associated with diagnoses (mean $r = .17$) and clinician ratings of depression (mean $r = .40$). The Ritscher et al. (2001) study did not find support for the Rorschach DEPI as a predictor of depressive diagnoses (mean $r = -.06$) or ratings (mean $r = .03$). These findings are in contrast to those of this study, which found support for the Rorschach but not the MMPI as a predictor of diagnoses (mean r s = $.10$ and $-.08$, respectively). Further studies are needed to replicate both sets of results and to further investigate which aspects of the MMPI and Rorschach are valid for which purposes in Russia.

Limitations

This study was limited by the absence of data supporting the validity of the diagnoses. The very low levels of association between test indicators and diagnoses were weaker than has been typical in prior research. To draw firmer conclusions about the use of these tests in Russia, more controlled studies are needed. The validity of psychosis diagnoses in Russia (particularly the Moscow school) was called into question by Westerners during the Soviet period, and there may still be systematic differences in the way diagnoses are made. There was also no data available on the interrater reliability of the diagnoses. Thus, with this methodology, it is impossible to unconfound the potential influences of (a) differences in the way that diagnoses are rendered in Russia, (b) error in the way that diagnoses were rendered in this study, and (c) other differences in the way that diagnoses are related to test scores in Russia (e.g., due to cultural differences in the way that participants respond to the testing situation). Furthermore, I was unable to determine the extent to which the diagnoses using each system were rendered independently from one another. This limitation potentially reduces the contrast between the various diagnostic systems. The contrast between groups was also limited by the fact that some of the patients in the non-schizophrenia-spectrum groups, such as those with bipolar disorder, could have been experiencing psychotic symptoms. This would have reduced the apparent diagnostic efficiency of the test scales. (Recall, however, that the diagnostic efficiency was not notably improved when the contrast was sharpened by narrowing the sample to those with schizophrenia or depression only.) According to the Rorschach, this sample appeared less disturbed than most other published samples of people with psychosis. Because there is no evidence about the validity of the diagnoses and because the patients were not all tested at the time of intake, their level of psychosis at the time of testing may have been less acute than would be ideal. This could have weakened the contrast between diagnostic groups and thus reduced the statistical power to discriminate between them. Note, however, that the sample appeared more disturbed than comparison samples

on the MMPI. These results should be understood to pertain to naturalistically collected clinical diagnoses rather than rigorously controlled research diagnoses.

All of the psychological test variables used in this study are better suited for identifying clinically significant psychotic features rather than making diagnoses. Unfortunately, other potential criterion variables such as the patient's level of functioning or clinician ratings of psychosis at the time of testing were not available. Further studies should validate these measures against more nuanced measures of psychotic experiences in addition to the more crude diagnostic categorization approach used in this study. For example, specific Rorschach variables might be compared to detailed measures of the specific construct that each one is thought to measure rather than to psychosis in general.

This study also lacked a gold standard against which to evaluate the quality of the individual RAs' Rorschach scores. Because final consensus scores were used in the analyses, and these consensus scores were evaluated against an expert's scores, this individual scoring issue may be largely irrelevant but still represents a potential limitation that could have affected the accuracy of the Rorschach data.

As in any cross-cultural study comparing culturally modified versions of standardized tests, the interpretation of these results is complicated by the fact that the version of the MMPI that I used was not identical to any American version (Dana, 2000). A preliminary draft of a new Russian-language version of the MMPI-2 has been developed in the United States (Koscheyev & Leon, 1996), but it has not been normed and is not yet widely used in either country (G. Leon, personal communication, 2003). In this study, I used Berezin et al.'s (1994) version because it is the most commonly used in clinical practice. Future studies might investigate the relative validity of the different versions for assessing psychosis. According to the version I used, this sample appeared somewhat more disturbed than other samples reporting average T scores for Sc on the original MMPI or MMPI-2 (Table 6). These analyses should be replicated in a more controlled sample of patients with documented acute psychotic symptoms and a comparison group without them.

Conclusions

Russian clinical psychology is in the process of becoming less academic and more applied (Ritscher, 1997). Reliable and culturally validated psychological assessment tools are necessary for clinical psychologists to develop a stronger professional role in Russia. These findings pose a challenge to Russian clinical psychologists seeking to develop a more meaningful role for psychological assessment techniques in psychiatric inpatient settings. In this study, I found no support for the concurrent validity of the Russian-normed MMPI with other indicators and diagnoses of psychosis, even though I had found some support in the same sample for its use in assessing depression. On the American-normed Rorschach, the reverse was true:

There was modest support for the indicators of psychosis (SCZI and PTI) but not for depression (DEPI). While the field awaits the new Russian MMPI-2 and the results of further cross-cultural psychometric studies, psychologists using the MMPI and Rorschach to assess psychosis in Russia should proceed with caution.

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