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A Psychopathological Index Based on Rorschach Human Movement Responses*

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ABSTRACT

The present study proposes a new psychopathological index based on Rorschach human movement responses (*M*), and shows that this index can successfully discriminate between several types of psychopathology. This index consists of two dimensions: Takase's (2003) *visibility score* and Exner's (2002) *activity (active-passive) score*. For the visibility dimension, *M* is analyzed in terms of physical motions (*outer type*), psychological activities (*inner type*), and combinations of outer and inner activities (*combined type*). Participants in the present study were 57 patients with anxiety disorders, 53 with schizophrenia, 20 with borderline personality disorder, and 279 nonpatients. The *visibility score* of the anxiety disorder group was significantly higher than that for the two other psychopathology groups, and was comparatively close to that of nonpatients. Both the schizophrenic and borderline personality disorder groups had significantly lower *visibility scores* than nonpatients. The borderline personality disorder group had a significantly higher *activity score* than the other patient groups. These findings are broadly consistent with the characteristics of each psychopathological disorder, as described in the scientific and descriptive literatures. The proposed psychopathological index appears to successfully characterize various forms of psychopathology.

Key Words: Rorschach, human movement responses, psychopathology

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The Rorschach human movement response (*M*) is one of the most important Rorschach variables for the understanding of psychological conditions and/or problems of the person being assessed. Many researchers have attempted to develop a psychopathological index that incorporates *M* responses and/or human responses, given that Rorschach (1942) himself indicated that *M* is a useful indicator of psychopathology. There has been studies of the content (Piotrowski, 1957; Exner, 2002) and structure (Blatt, Brenneis, Schimek, & Glick, 1976; Blatt & Lerner, 1983; Urist, 1977; Urist & Shill, 1982) of *M*, and such studies have focused on the assessment of various personality traits and/or types of psychopathology. These studies provide important and useful information to aid in psychopathological assessment. However, a student who has just begun to learn the Rorschach would likely find the coding methods used in these studies difficult to apply, given that they involve many classification categories and complicated scoring rules. Consequently, it seems necessary to design and validate a more straightforward approach to using *M* to assess psychopathology.

Takase (2003) proposed a comparatively simple method in which *M* is analyzed on the basis of visibility: *Outer, inner and/or combined* activity. This method successfully captures the characteristics of various psychopathological groups. Furthermore, Takase (2005) found that the accuracy of this method is improved by incorporating the concept of activity; that is, an *active-passive* dimension (Exner, 2003). The purpose of the present study was

to further refine the concepts of visibility and activity within the context of Rorschach assessment, and to confirm that these concepts can be used to differentiate several distinct types of psychopathology.

Visibility of *M*: *Outer, inner, and combined*

Visibility reflects the extent to which proposed movement in an inkblot is observable (Takase, 2003). Takase (2003) developed an analytical method for classifying the contents of *M* into the following three categories: (a) descriptions of activities characterized by physical motions (e.g., "dancing," "sitting") (hereafter, *outer*), (b) descriptions of purely psychological activities, including thoughts and/or affection (e.g., "loving," "thinking") (hereafter, *inner*), and (c) descriptions of *inner* and *outer* activity combinations (e.g., "thinking with his/her arms folded," "beating it with anger") (hereafter, *combined*). An *outer* response is a description of commonly observed human movements, and suggests that the subject is able to adequately perform reality testing in that he or she is capable of describing visible muscular movements. An *inner* response is a description of invisible human activity without reference to anything that is clearly visible. An *inner* response can be considered a sign of fantasy. However, a response of this type might also be a deviational sign, when we consider the fact that one usually represents the *inner* activities of a figure observed in a blot only after referring to its observable muscular movements. Too many *inner* responses may therefore indicate a lack of reality testing

and/or a disturbance of thought processes. A *combined* response, in which both visible motions and invisible activities are described, indicates excessive interpretation of an inkblot. In this sense, a *combined* response resembles the concept of a "fabulized response" (Rapaport, Gill, & Schafer, 1968).

The concept of visibility and the associated analytical method were established using 463 Rorschach records that were collected by the author from 1991 to 2003. These records (stored in a database) include those from various clinical groups as well as nonpatients. One thousand eight hundred and seventy-three *M*, and 1,487 animal movement (*FM*) responses were extracted from these records. I investigated what kinds of words occurred in these responses. Four hundred and eighteen different verbs appeared in *outer* type responses, 78 in *inner* type responses, and 73 verbs in *combined* type responses (e.g. "threatening", "fooling", "relaxing"). The present study was based on these data.

Activity of *M*: Active-passive

Activity indicates the degree of energy expended by figures observed in an inkblot. Research on activity (*M*) originated from the ideas of Rorschach (1942) himself. He emphasized the importance of evaluating movement based on "extension" (moving away from the center of the blot) or "flexion" (moving toward the center of the blot) (Rorschach, 1942). He suggested that subjects who see predominately extensor movements (i.e., stretching or rising figures) are basically different from those subjects who mainly see figures that are

bowed, kneeling and/or reclining. Those who see expansive movements are active individuals, people with a strong urge to be somebody and keep occupied. Those subjects who see flexor movements are passive, resigned to their fates, and are frequently troubled by neurasthenia. Based on Rorschach's idea, Piotrowski (1957) developed his own method of classifying *M* in terms of "assertiveness," "compliance," and "indecisiveness." Piotrowski also believed that the contents of *M* are clearly related to the behavioral characteristics of the subject. Exner (2002) subdivided all movement responses into *active* and *passive* categories, stating "Differences in the characteristics of *M* do relate to differences in behavioral and interpersonal effectiveness" (p. 429). As can be seen from the above review, the relationships between *M* responses and behavior characteristics have been emphasized. In addition, several studies have demonstrated relationships between active *M* responses and an action-oriented interpersonal behavior pattern, as well as passive *M* responses and a more moderate behavior pattern (Wagner & Hoover, 1972; Young & Wagner, 1993).

The present study classified human movement responses into *active* and *passive* types, according to the procedures of Exner (2002) and Holaday (1997). This study also incorporated Exner (2002)'s hypothesis that the contents of *M* do relate to interpersonal behavior patterns. *M* responses can be classified into 6 types when activity and visibility concepts are combined: *Outer-active*, *outer-passive*, *inner-active*, *inner-passive*, *combined-active*, and *combined-passive*. Table 1 shows examples of each

Table 1 Types of Responses and Their Examples

Type	Example
Outer	beating, dancing, jumping, running, sitting
Inner	feeling, loving, meditating, thinking, willing
Combined	beating it with anger, thinking with his arms folded
Outer-Active	dancing, running
Outer-Passive	sitting, sprawling
Inner-Active	creating, enjoying
Inner-Passive	being depressed, meditating
Combined-Active	beating it with anger, dancing happily
Combined-Passive	thinking with his arms folded, falling asleep exhausted

type of response.

Psychopathological Index

The psychopathological index used in the present study consisted of two dimensions: The *visibility* and *activity scales*. Scores on these two scales were calculated using the number of responses obtained for each category, according to the following formulas: $Visibility\ score = outer - (2 \times inner + combined)$, $activity\ score = active - passive$. A high score suggests a high level of adjustment, whereas a low score could indicate a disturbance in reality testing (i.e., a low adjustment level). A high score on the activity scale suggests a tendency toward action-oriented modes in interpersonal relationships, whereas a low score is suggestive of constricted interpersonal behavior.

METHOD

Participants

Rorschach protocols from 57 patients with anxiety disorders, 53 patients with schizophrenia, and 20 patients with borderline personality disorder were used in the present study, all collected between 1993 and 2007. Each participant met diagnostic criteria for their respective diagnoses, as specified in the *Diagnostic and Statistical Manual of Mental Disorders* (3rd ed., rev. [DSM-III-R]; American Psychiatric Association, 1987; or 4th ed.; American Psychiatric Association, 1994).

The anxiety disorder group consisted of 28 patients with panic disorder, 23 with generalized anxiety disorder, 2 with obsessive-compulsive disorder, and 3 with social phobia. The mean age of this group was 34.2 years (SD = 11.6). Mean years of education for this group was 13.6 (SD = 2.0). Thirty-six of the 57 anxiety disorder patients (63%)

were male. The schizophrenia group included 17 patients with the paranoid subtype, 14 with the disorganized subtype, 3 with the catatonic subtype, and 19 with the undifferentiated subtype. In the schizophrenia sample, the mean age was 32.0 years ($SD = 8.0$) and mean years of education were 12.0 ($SD = 2.1$). Thirty of the patients in this group (57%) were male. In the borderline personality disorder group, mean age was 31.2 years ($SD = 10.5$) and mean years of education were 12.6 ($SD = 2.3$). Most of the patients in this group were female (85%). The comparison group consisted of 279 adults with no known history of psychiatric disorders. The mean age of this nonpatient group was 24.3 years ($SD = 8.1$), and mean years of education were 13.9 ($SD = 1.6$). One hundred and

seventy females (61%) were included in the nonpatient group. Table 2 shows the characteristics of the participant samples.

Procedure

The administration and scoring of the Rorschach protocols followed the approach of Kataguchi (1987). Only human movement responses (M) were re-scored, according to Exner (2002). M (*outer-inner-combined, active-passive*) was scored by the author, as well as by an undergraduate student who majored in clinical psychology and who was blind to the purpose of this study. Interrater reliabilities were computed as intraclass correlation coefficients. Interrater reliabilities were .94 for *outer*, .71 for *inner*, .93 for

Table 2 Characteristics of the Samples

Characteristic	Nonpatient (N=279)	Anxiety disorder (N=57)	Schizophrenic (N=53)	Borderline (N=20)
Sex				
Male	109	36	30	3
Female	170	21	23	17
Age				
M	24.3	34.2	32.0	31.2
SD	8.1	11.6	8.0	10.5
Range	19-78	17-69	19-54	18-54
Years of education				
M	13.9	13.6	12.0	12.6
SD	1.6	2.0	2.1	2.3
Number of Responses (R)				
M	25.3	18.4	16.9	19.8
SD	13.8	9.3	8.8	8.2

combined, .95 for *active*, and .95 for *passive* categories. Scoring differences were settled through reaching a consensus. In the statistical analysis, the frequencies of each variable (*outer*, *inner*, *combined*, *active*, *passive*) were first examined. The number of *M* responses was divided by the total number of responses (*R*) to yield a percentage score for each participant. This procedure was employed to normalize differences in the total number of responses across participants. After examination of these frequencies, the psychopathological index scores of each group were compared.

RESULTS

Kruskal-Wallis tests showed that there were significant differences across the four groups (*outer*, $H = 24.00$, $p < .001$; *inner*, $H = 33.67$, $p < .001$; *combined*, $H = 13.90$, $p < .01$; *active*, $H = 15.23$, $p < .01$; *passive*, $H = 19.66$, $p < .001$; *outer-active*, $H = 14.67$, $p < .01$; *outer-passive*, $H = 25.21$, $p < .001$; *inner-active*, $H = 28.53$, $p < .001$; *inner-passive*, $H = 17.85$, $p < .001$; *combined-active*, $H = 11.78$, $p < .01$; *combined-passive*, $H = 16.59$, $p < .01$; *visibility score*, $H = 39.68$, $p < .001$; *activity score*, $H = 18.82$, $p < .001$). The schizophrenic group produced significantly more *inner* responses than the other psychopathology groups. There were significantly more *combined* and *active* responses in the borderline personality disorder group than the other patient groups. The anxiety disorder group produced significantly more *passive* responses and significantly fewer *active* responses than the other patient groups. Both the schizophrenic group and the borderline personality disorder group had

significantly lower *visibility scores* than the nonpatient group. Finally, the borderline personality disorder group had a significantly higher *activity score* than the other patient groups. Table 3 indicates the frequencies of each response including *outer-inner-combined*, *active-passive*, and the combination of the two dimensions. The *visibility* and *activity scores* of the psychopathological index are shown in Table 4. The distributions of *visibility* and *activity scores* across the participants in each group are shown in Figure 1, and the mean values of these scores are shown in Figure 2.

Table 3 Frequencies¹ of Each type of *M* Responses in Nonpatient, Anxiety disorder, Schizophrenic, and Borderline Group

Variable	1		2		3		4		Kruskal-Wallis test	Mann-Whitney test
	Nonpatient (N=279)		Anxiety disorder (N=57)		Schizophrenic (N=53)		Borderline (N=20)			
	M	SD	M	SD	M	SD	M	SD		
Outer	15.2	9.49	12.42	9.62	10.11	10.49	8.91	6.36	24.00*** ²	1>2* 1>3*** 1>4**
Inner	0.13	0.81	0.33	1.46	3.30	8.16	1.76	5.37	33.67***	3>1*** 3>2** 4>1**
Combined	4.48	7.38	1.95	3.55	3.41	7.01	9.91	13.24	13.90**	4>1* 4>2** 4>3** 1>2*
Active	13.37	9.91	8.42	7.43	12.75	13.54	18.16	15.11	15.23**	1>2*** 4>2**
Passive	6.45	5.88	6.29	5.76	3.90	5.11	2.43	4.14	19.66***	1>3*** 1>4** 2>3* 2>4**
Outer-Active	9.64	7.45	6.63	7.25	7.29	8.89	7.50	5.69	14.67** ²	1>2** 1>3**
Outer-Passive	5.57	5.72	5.79	5.54	3.01	4.83	1.41	2.65	25.21***	1>3*** 1>4*** 2>3** 2>4**
Inner-Active	0.12	0.78	0.10	0.74	2.17	6.07	1.08	3.20	28.53***	1<3*** 1<4** 2<3** 2<4*
Inner-Passive	0.02	0.21	0.23	1.28	0.78	2.53	0.68	2.22	17.85***	1<3*** 1<4***
Combined-Active	3.61	6.25	1.69	3.29	3.30	7.02	9.57	13.33	11.78**	1>2* 1<4* 2<4** 3<4*
Combined-Passive	0.87	2.71	0.26	1.47	0.11	0.81	0.34	1.05	16.59**	1>2** 1>3**

Note: ¹ Each number of *M* responses was divided by the total number of responses (*R*) of each participant.

² **p*<.05 ***p*<.01 ****p*<.001

Table 4 The Scores of the Psychopathological Index in Nonpatient, Anxiety disorder, Schizophrenic, and Borderline Group

Variable	1		2		3		4		Kruskal-Wallis test	Mann-Whitney test
	Nonpatient (N=279)		Anxiety disorder (N=57)		Schizophrenic (N=53)		Borderline (N=20)			
	M	SD	M	SD	M	SD	M	SD		
Visibility Score ¹	2.57	3.29	1.92	2.47	0.50	3.65	-0.30	3.29	39.68*** ³	1>2* 1>3*** 1>4*** 2>3* 2>4*
Activity Score ²	1.71	2.96	0.44	1.84	1.48	2.43	2.52	2.06	18.82***	1>2*** 3>2* 4>2*** 4>3*

Note: ¹ visibility score = outer - (2 × inner + combined) ² activity score = active - passive ³ **p*<.05 ***p*<.01 ****p*<.001

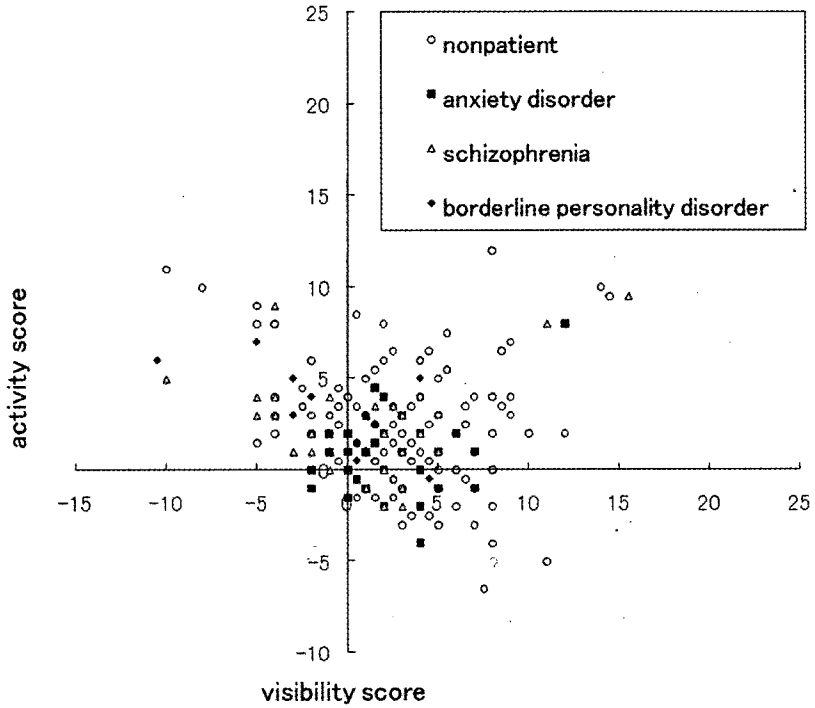


Figure 1 Distribution of *outer-inner* and *active-passive* scores

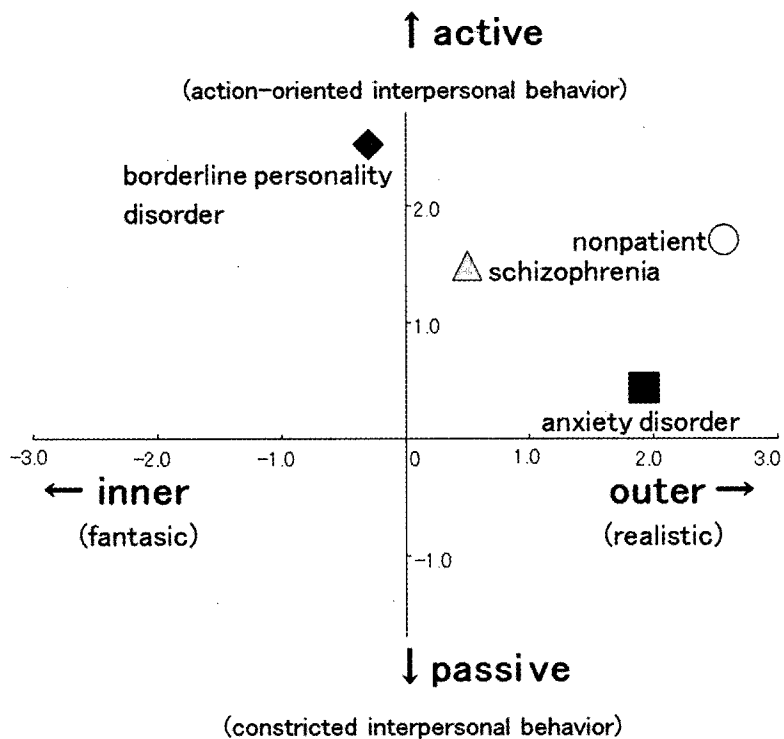


Figure 2 Averages of *outer-inner* and *active-passive* scores of each group

DISCUSSION

There was not a large difference between the anxiety disorder and the other patient groups in terms of total number of responses. However, the *visibility score* for the anxiety disorder group was significantly higher than that for the other psychopathology groups (schizophrenia and borderline personality disorder), and was comparatively close to that of the nonpatient group. These findings suggest that the ego functions of anxious patients (e.g., reality testing or thought processes) may not be compromised. On the other hand, the significantly lower *activity scores* in the anxiety disorder group could be interpreted as a sign of severely constricted interpersonal behaviors. This result is consistent with the findings of de Ruiter and Cohen (1992), who investigated the personality features of patients with panic disorder. In brief, outer responses without dynamic movement (e.g., "Two people facing each other") are typical of *M* in anxiety disorder samples.

It is noteworthy that both the schizophrenic and borderline personality disorder groups had significantly lower *visibility scores* than the nonpatient group. This result suggests that these patients are likely to interpret Rorschach stimuli to suit their own emotions or needs, and may thus have disturbances in reality testing. We therefore examined the frequencies of each response type in these two groups. The schizophrenic patients produced a significantly higher number of *inner* responses than the other patients. In other words, the schizophrenic patients demonstrated a pervasive tendency to refer to psychological activities without

referring to the physical motions of human figures perceived in an inkblot. One response given by a particular patient with schizophrenia to Card VI was "A man is depressed ... It is me!" This strange response represents a startling "loss of distance" (Rapaport, Gill, & Schafer, 1968) from the task at hand, and is indicative of the kind of repetition of personal experience that is frequently encountered in schizophrenic patients. This type of response suggests that schizophrenic patients have some disturbances in the thinking process. However, the *active-passive* dimension failed to discriminate schizophrenic patients from the other psychopathological groups. It could be difficult to find activity responses that are particularly characteristic of schizophrenic patients, given that these responses are indicative of the quality of an individual's interpersonal behavior.

The patients with borderline personality disorder produced the highest number of *combined* responses, and the lowest number of *outer* responses across the four groups. Their responses included such combinations of *outer* and *inner* activities as "Two people dancing but hating each other" (Card III), and "A woman watching a mirror. Maybe she is occupied with her own problems" (Card III). These responses suggest that the borderline patients have a confabulatory tendency, in which their interpretations of human figures are excessively subjective. Mayman (1977) explains responses "based upon more extensive forms of dissolution of ego-boundaries" as follows:

"The perceived action is largely fabulized rather than

inherent in the percept itself. In contradistinction to the reality-orientation of the empathic *M*, in these, the affect-content or action which the subject 'sees' is not ordinarily associated with that response, and may even be projected onto the blot in quite arbitrary fashion" (p. 246).

According to this explanation, the *M* responses given by the borderline personality disorder patients in the present study suggest a tendency toward "dissolution of ego-boundaries." In other words, these responses indicate a state of "identification" (Mayman, 1977) in which the self-other distinction is blurred or lost, and do not reflect "empathy", which is a higher-level psychological attainment carried out consciously or pre-consciously under ego control.

The borderline personality disorder group also showed the highest scores on the *activity scale*. This finding suggests a general tendency toward action-oriented modes in the borderline personality disorder patient. This is consistent with the view of Blatt and Lerner (1983), who investigated the various features of psychopathological disorders based on human responses.

It should be noted that various subtypes are included in our schizophrenic and anxiety disorder groups. As Greco and Cornell (1992) pointed out, this is likely a common problem across many Rorschach studies because specific types of subjects needed for a particular study are relatively difficult to find. However, the psychopathological index proposed here succeeded in making apparent some features of specific psychopathological conditions.

The scores of this index provide important information not only about ego functions such as reality testing or thinking processes, but also about quality of interpersonal relationships. These findings indicate that there is a sound basis for the use of this index in clinical settings. The analysis of Rorschach *M* responses in terms of *outer-inner-combined* activity and the *active-passive* dimension seems effective for the assessment of psychopathology.

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