REVIEW OF LITERATURE

STUDIES ON RORSCHACH TEST IN SCHIZOPHRENIC PATIENTS

Dubey (1981) administered Rorschach on 100 schizophrenic, 100 neurotic and 100 normal males. Protocols were scored for 45 Rorschach variables. Out of 45 variables 31 were found to be discriminating among three groups of subjects.

Mujtaba and Mujtaba (1985) conducted a study through Rorschach inkblot test to find out the relationship between homosexuality and paranoid schizophrenia. The Rorschach records of paranoid group contained significantly greater mean number of Wheeler's signs of homosexuality than the non-paranoid group. However, a complete absence of homosexual tendencies among non-paranoid schizophrenics could not be established.

Carter et al. (1987) evaluated the use of a family Rorschach technique as a means of distinguishing families of 29 schizophrenic patients from those of 38 psychiatrically hospitalized non-schizophrenic individuals. Results show that
the families with schizophrenic offspring scored significantly lower (i.e. had more communication and attentional difficulties) than those with non-schizophrenic offspring.

Li Ox (1989) in a study examined 50 schizophrenic inpatients and 50 normal subjects with Rorschach test. The results showed that 10 of 35 variables of the Rorschach test is a distinct difference between the schizophrenic patients and the normal subjects. In the 10 variables, 8 variables (R, D, F, F+, X%, Fc, Sum C’, pair responses) of the schizophrenic patients is lower than the normal subjects, and 2 variables (repeated answer, psychopathic answer) of the schizophrenic patients is higher than the normal subjects. In the frequency of 36 variables of the Rorschach test, 8 variables (M, Ma, FM, repeated answer, Psychopathic answer, F% less than 70%, zd greater than +3, zd less than -3) showed significant difference between two groups.

Frank (1990) reviewed the research on the use of the Rorschach in the diagnosis of schizophrenia. The analysis of this research indicates that schizophrenics do not respond in any unique fashion to any particular determinant or any particular card. The research also indicates that the computation of percentages and ratios, no matter how complex, does not facilitate the identification of a schizophrenic process. What the research does demonstrate is that schizophrenia, in its overt as well as latent and borderline forms, is detectable on the
Rorschach through an analysis of the patient’s thinking. The thinking of the schizophrenic reveals highly personal, illogical, and bizarre associations to the blots. This analysis of thinking is not accomplished through assessment of the formal properties of the blots, e.g., the analysis of responses to color, movement, shading, the color-to-movement ratio, or form level (low form level proves to be a function of psychoticism, not schizophrenia, per se) but more in terms of the phenomenology of the responses.

Basinska and Rybakowski (1991) conducted a study on 37 patients (21 men, 16 women) during treatment for schizophrenia administering Rorschach test, BPRS and Hamilton Depression Scale. In 12 patients Rorschach test results were not interpreted because of scant answers, these patients manifested more psychopathology, especially depressive and defective symptoms. In 25 patients, in whom the interrelationships between the applied tests were studied, the results indicated that the intensity of psychopathologic symptoms showed positive correlation with the analytically-scrupulous thinking; the intensity of productive symptoms correlated with the interests in other people. The finding was more pronounced among the male patients, which may suggest some dependency of schizophrenic thought disorder on patient’s sex. The intensity of depressive symptoms measured by Hamilton Scale showed positive correlation with the index of thinking correctness but negative correlation with
impoverishment of internal and external activity. The results suggest that depressive symptoms in the course of schizophrenia may significantly influence Rorschach test results.

Adair and Wagner (1992) studied Rorschach protocols of 50 outpatients with schizophrenia who had been tested twice with an average interval of 6.4 years between administrations were scored blind by graduate students trained to detect Unusual Verbalizations (UVs). There were no significant differences between mean group UV scores obtained at the first testing (T1) and the second testing (T2), which attests to the persistence of thought disorder in schizophrenia. The correlations between T1 and T2 testing were, however, modest at best. Deviant Verbalizations, the least pathological of the UV categories showed the highest test-retest relationship at 0.50.

Perry and Braff (1994) studied the relationship between information processing deficits and thought disorder in schizophrenic patient. Fifty-two subjects diagnosed with schizophrenia were administered tests of information processing and thought disorder. The information-processing tests included visual backward masking and prepulse inhibition of the startle reflex. Thought disorder was measured with the Magical Ideation Scale, the Scale for the Assessment of Positive Symptoms, the alogia subscale of the scale for the Assessment of Negative Symptoms, and the Ego Impairment Index-human experience variable and its subcomponents derived from the
Rorschach. Elevated poor responses on the Ego Impairment Index-human experience variable were significantly correlated with information-processing deficits. In a simultaneous multiple regression, the auditory prepulse inhibition measure was the best predictor of poor responses on the Ego Impairment Index-human experience variable.

Harada (1996) conducted a study on Rorschach response process in schizophrenia to make clear the relationship between the Rorschach response and the perceptual process in schizophrenia by investigating cognitive activities using eye-mark recorder. Four Rorschach cards were selected, achromatic cards I and V, and chromatic cards II and VIII. Thirty chronic schizophrenic inpatients (who met DSM-III-R for “Residual Type”, and whose negative symptoms were evaluated according to SANS) and 20 normals were all administered the Rorschach test in the used manner but they wore an eye-mark recorder. Their eye movements during reporting the initial response to each card were recorded on the VTR connected with the eye-mark recorder. On the response of each card, five eye movement items (1. total response time; 2. number of eye-fixation movements/sec.; 3. mean eye-fixation time; 4. mean eye-fixation tracking length, and 5. eye-fixation frequency on each detail area) were measured and analyzed. By their initial response, subjects were divided into 3 response groups: Popular response group, non-Popular response group and Rejection group. On the achromatic cards I and V, cognitive activities during delivering
Popular response in schizophrenia were examined in comparing with those of normals. On the chromatic cards II and VIII, after the eye movements of Popular response group in schizophrenia were compared with those of Normals, scanning activities of the non-Popular group, the Rejection group and the Popular group were investigated in comparing with each other among schizophrenics. On the achromatic cards with the most solid blots; Cards I and V, the schizophrenics could easily give a Popular response the same as normals. However, the visual scanning activity of schizophrenics was limited on a small detail area and inactive compared with normals. The results show the discrepancy between the response and the cognitive activity. On the achromatic cards, this suggests that the Rorschach response process in schizophrenia is different from those of normal’s, even if the responses of schizophrenia is the same as those of normals. On the chromatic cards with the most broken blots; Cards II and VIII, most of schizophrenics failed to give any response, hardly gave a Popular response but a non-Popular response. Among schizophrenics, the few Popular groups indicated a limited pattern with poor scanning on the blot. Besides in SANS, their negative symptoms showed high attentional impairment. Although the nor-Popular group gave many color responses, they avoided looking at the color areas. As for the Rejection group, although eye-fixation shifted and searched all over the blots, the subjects failed to give any response. Particularly on Card II, some of their visual focal
points scattered on the white space areas out of the blot. This implies the failure of perception focusing on the appropriate blots as the relative stimulus and the impairment of selective attention in schizophrenia.

Chaudhury and Sundari (1996) analyzed of Thiesen’s patterns in Rorschach responses of 44 adolescent schizophrenics and an equal number of age and sex matched normal adolescents was undertaken. Only three of the five Thiesen’s patterns associated with schizophrenia, namely patterns A, C and D occurred significantly more frequently in the Rorschach records of adolescent schizophrenics as compared to the normal controls.

Chaudhury and Jyothi (1996) administered the Rorschach test on thirty matched pairs of paranoid and non-paranoid schizophrenia patients. Records of paranoid schizophrenia patients contained significantly greater number of Wheeler’s homosexual signs as compared to those of non-paranoid schizophrenia patients. However, complete absence of homosexual signs in the records of non-paranoid schizophrenia patients was observed.

Hilsenroth et al. (1998) investigated the reliability, validity, and diagnostic efficiency of the Rorschach Schizophrenia Index (SCZI). The results of this study indicate that the SCZI is internally consistent and can be reliably scored.
Ilonen et al. (1999) studied the diagnostic efficiency of the Rorschach schizophrenia (SCZI) and depression (DEPI) indices for detecting first-episode schizophrenia and severe depression with and without psychotic features using DSM-IV as a gold standard measure. Twenty-seven patients with first-episode schizophrenia, 13 with bipolar I disorder, 28 with psychotic depression, 29 with non-psychotic depression, and 60 healthy controls were recruited for the study. The SCZI was highly specific with a very low false positive rate. The lowest positive value of 4, however, may yield false positives, especially among manic patients. The DEPI identified severe non-psychotic depression but not psychotic depression, suggesting that these patient groups invoke different perceptual-cognitive processes in formulating and articulating their Rorschach responses. Anyway, both the SCZI and the DEPI based on the psychological organization and functioning that are known to play a clearly formulated role in schizophrenia and depression respectively, provide a valuable addition for diagnostics characterized by overt symptoms.

Garfield (2000) tried to find out the utility of Rorschach test in clinical diagnosis based on Rorschach records alone on 75 consecutive psychiatric cases referred because of diagnostic difficulties were compared with the final psychiatric staff diagnoses. For the two largest diagnostic categories schizophrenia and psychoneurosis, it was found that 88% of the cases classified as schizophrenic by the test were also so
classified by the psychiatric staff, but only 72% of the cases classified as schizophrenic by the psychiatrists were so classified by the test; for the psychoneurotics, the test identified 95% of the patients classified as neurotic by the staff, but only 66% of the cases classified as neurotic by the test were so classified by the staff.

**Danielsson et al. (2001)** studied the sex-related differences in thought processing as shown in the Rorschach test. Thirty-six schizophrenic patients (18 men and 18 women) were tested with the Rorschach in accordance with the Comprehensive System. The results showed that the female patients were more active in handling information input but showed more impairment in conceptualization. The male patient showed more perceptual disturbance. It was concluded that the Rorschach might add information in differentiating among subtle thought disturbances. It might even be useful to detect relationships between thought processes and neuroleptic medication.

**Koide et al. (2002)** reported that schizophrenic patients produce Rorschach percepts implying a mass of flesh (flesh mass). Although typically directly referring to a mass of flesh or muscle, the flesh masses were seen more broadly, in modified forms such as animals or human beings with diminution of head, arms or legs. From observations on 76 chronic schizophrenics, inclusion and exclusion criteria were
developed to reliably detect both explicit and implicit flesh masses. The presence or absence of the flesh mass was further examined in the Rorschach data of 22 patients with acute schizophrenia, 30 with anxiety disorders, 16 with psychotic mood disorders, and 28 normal adults. Diagnoses were made according to DSM-IV. Flesh masses were seen in 75 of 76 cases of chronic schizophrenia, in all cases of acute schizophrenia, in two patients with anxiety disorders, and in one patient with a mood disorder. Normal adults did not perceive any flesh mass. Flesh masses proved to be characteristic of schizophrenia, whether chronic or acute.

**STUDIES ON RORSCHACH TEST IN MANIC AND DEPRESSIVE PATIENTS**

Schlesinger and Fox (1980) compared the number of Rorschach achromatic perceptions of 10 male and 10 female hospitalized unipolar depressed patients with a control group of 10 male and 10 female hospitalized patients who held diagnoses other than depression or mania. The depressed patients gave significantly more achromatic perceptions than the non-depressed group. The long held belief, based on clinical observation, that achromatic perceptions distinguish depressed from non—depressed individuals, was supported by this study.

Mac Hovec (1982) tried to differentiate affective from thought disorder by semantic analysis of Rorschach responses.
Means, percentile incidence, and two statistical analyses yielded data which suggested that this design and procedure has potential in the differential diagnosis of psychotic thought and psychotic affective disorders.

Pratap and Kapur (1984) compared the responses of literate manics and normals on Rorschach inkblot test to determine diagnostic criteria for Indian patients. Analysis revealed that the two groups differed significantly in relation to the total number of responses; responses on cards 8, 9, 10; reaction time to achromatic cards; average response time; location details and determinants. Content responses and popular responses as well as F+ and F- form level ratings differed significantly in the two groups.

Mandel et al. (1984) conducted a study on Rorschach markers in euthymic manic-depressive illness. Rorschach test was administered on 35 bipolar manic-depressives in a euthymic state. The scores were analyzed using Exner's comprehensive system methods and compared with his stratified normal control sample. Nine variables differentiated the patients from controls.

Acklin and Bernat (1987) addressed the association between depression, alexithymia and low back pain (LBP) using the Rorschach comprehensive system. Subjects were 33 chronic LBP patients. On depression measures, LBP patients differed significantly from depressives. LBP patients exhibited
Rorschach features consistent with alexithymia. They also exhibited a number of similarities to the personality disorder groups.

**Silberg and Armstrong (1992)** conducted a study using the Rorschach test for predicting suicide among depressed adolescent inpatients. Using Psychiatric Evaluation Form (PEF) scores they selected a sample of 25 severely depressed and suicidal adolescents; and 26 severely depressed non-suicidal adolescents; and 28 non-suicidal, non depressed adolescent inpatients at the Sheppard and Enoch Pratt Hospital. A Rorschach Index using the Exner (1986) comprehensive system for scoring was developed to predict group membership. Four of six of the features on this index selected 64% of suicidal subjects. This constellation included traditional affective variables (vista responses, color shading blends, color dominated responses, and morbid content) as well as measures of cognitive distortion (inaccurately perceived human movement responses – ‘M’-) and special scores.

**Singer and Brabender (1993)** compared the Rorschach performance of 29 unipolar depressed, 15 bipolar depressed, and 18 bipolar manic inpatient subjects (n=62) classified on the basis of the Research Diagnostic Criteria (RDC). The three main groups differed from one another on a variety of variables, especially those related to ideation and information processing. One finding of particular importance was that bipolar depressed
subjects like bipolar manic and unlike unipolar depressed subjects, showed a high level of cognitive slippage. These results suggest that the Rorschach possesses utility in the differential diagnosis of affective disorders.

Carter and Dacey (1996) conducted a study to assess the validity of the Beck Depression Inventory (BDI), the MMPI Depression Scale (MMPI – D), and the Rorschach Depression Index (DEPI) in measuring adolescent depression. Retroactive charts of 118 hospitalized adolescents were divided into depressed (n = 66) and non-depressed (n = 52) groups, based on the psychiatric diagnosis. Results indicated significant differences between the means of the two groups on the BDI and the MMPI – D scale, establishing concurrent validity for these measures of depression. Correlation coefficients among the three measures of depression indicated a significant relationship between the BDI and the MMPI – D scale, again supporting the concurrent validity of these instruments. Predictive utility was determined for each of the three instruments individually and in combination, with results indicating that the BDI and MMPI – D scales alone and in combination significantly discriminated depressed from non-depressed adolescents. The MMPI – D scale alone was the most accurate measure in classifying the participants into their respective groups. The DEPI was not established as a valid predictor of adolescent depression.
Carlson et al. (1997) in a study focused on the clinical field validity of the Rorschach comprehensive system revised DEPI and CDI indices. Forty admission protocols from two inpatient adults DSM – III – R diagnosed samples, one with Major Depressive Disorder, uncomplicated, and one with major Depressive Disorder and concurrent Borderline Personality Disorder, were compared. Hypotheses were (a) both groups would be identified by the revised DEPI and (b) if the Depressed Borderline group was not identified by the DEPI, it would be identified by the CDI. Both hypotheses were negated, raising questions regarding the validity of the indices for use in clinical diagnosis, treatment and clinical research.

Khadivi et al. (1997) examined signs of mania on the Rorschach, specifically whether manic inpatients (n =24) produce different thematic content and thought disorder than comparison groups of paranoid schizophrenic (n=27) and schizo-affective (n=25) inpatients. Rorschach protocols were scored by a trained rater for the Thought Disorder Index and the Schizoid Affective Rating Scale. Results indicated that all the three groups had moderate levels of thought disorder, but the manic inpatients produced significantly more combinatorial thinking and affective content responses than the other two groups. The paranoid schizophrenic and schizo-affective patients did not produce significantly more schizoid content and were not different on any other type of thought disorder than the manic patients.
Osher et al. (2000) examined the Rorschach Performance of healthy offsprings of bipolar parents and compared them to matched normal controls. Fourteen asymptomatic offsprings (aged 7-16 years) of Israeli Manic depressive parents were matched for age, gender and other demographic variables with 14 children of normal parents. Results show that offsprings of bipolar parents, like bipolar patients themselves, show significantly increased incidence and severity of thought disorder, lower number of cognitively mediated affective responses and fewer responses indicating conventional perceptions.

Krishnamurthy and Archer (2001) conducted a study to evaluate Viglione, Brager and Haller’s suggestion that the DEPI may have better discriminative ability for individuals with extratensive problem-solving styles, measured by the Rorschach EB (Erlebnistypus) variable, compared to those with introversive and ambivalent styles. Comparisons were conducted between adolescents with depression-related diagnosis and adolescents with other diagnoses for each of the three EB groups. The results failed to support the hypothesized greater discriminative power of DEPI for depressed extratensives, and suggest caution in using the DEPI to evaluate adolescent depression.

Fowler et al. (2001) examined the relation between the Rorschach Comprehensive System’s Suicide Constellation
(S-CON) and lethality of suicide attempts during the course of patients’ hospitalization at the Austen Riggs Center (Stockbridge, MA). Patient records were rated as non-suicidal (n=37), Para suicidal (n=37), or near lethal (n=30) based on the presence and lethality of self-destructive acts. Logistic regression analysis revealed that an S-CON score of 7 or more was the sole predictor of near lethal suicide attempts among 9 psychiatric and demographic variables.

Ritsher (2001) tested the criterion, concurrent and content validity of depression indicators in 180 Russian Psychiatric Patients. Indicators from the Exner Rorschach (DEPI, CDI) and the Russian MMPI (Berezin Scale 2, Wiggins depression content) were compared to Hamilton (HRSD) scores and 3 types of diagnosis: Traditional Russian, Contemporary Western, and a mixed version. Results show that the MMPI scales had significant associations with each other and each criterion. The Rorschach indexes were unrelated to all other variables, even when their affective, cognitive and interpersonal components were analyzed separately, response styles were taken in to account, or the 2 indexes were used in combination. Nevertheless, sample means on 107 variables were roughly similar to Exner’s norms.

Hartmann et al. (2003) examined clinically depressed (CD; n = 16), previously depressed (PD; n = 19) and never depressed (ND; n = 18) individuals on 13 theoretically selected
Rorschach variables (Exner, 1993; Rorschach, 1942) and on the Beck Depression Inventory (BDI; Beck, Rush, Shaw and Emery, 1979). The group assignment was made according to the criteria of DSM-IV (APA, 1994). The CDs significantly contrasted the combined group of NDs and the PDs in a pathological direction on 8 of the 13 Rorschach variables and on the BDI. However, the combined group of CDs and PDs also significantly contrasted the NDs in a pathological direction on 3 of these Rorschach variables and on the BDI. In addition, logistic regression analysis indicated that Rorschach indexes significantly improved the prediction of major depression above and beyond that achieved by the BDI. The findings show that the Rorschach method was able to identify (a) cognitive and aggressive disturbances that are present in individuals who are actively depressed but not in individuals who have been depressed in the past or never been depressed and (b) affective and coping disturbances that are present in depressed individuals and to some degree in PD individuals but not in individuals who have not experienced depression.

STUDIES ON SIS-I

Rathee et al. (1994) studied 75 coronary cases and 75 normal subjects in the age range of 30-55 years using SIS-I test. They found that the coronary cases tend to give low number of responses, unhealthy somatic imagery, low typical responses with rejection of more images than normal subjects.
Sahay and Srivastava (1994) administered SIS-I on two transsexuals to understand their personality, and inner cry if any. Results revealed that the test was powerful to bring out lots of unprocessed unconscious materials and are also helpful in the process of therapeutic intervention.

Mukhopadhyay et al (1996) administered SIS-I and Beck Depression Inventory on 50 drug addicts (22 heroin addicts, 16 brown sugar addicts, and 12 tidigesic addicts) to find out the depression level and explore the role of diagnostic indices for them. The responses were evaluated on four pathological scales i.e. Pathological Anatomy Scale (PAS), Depression (D), Hostility and Aggression Scale (HAS) and paranoia (P). The results revealed that the drug addicts uniformly suffer from depression. Anatomy responses also indicated their hidden depression.

Rathee and Singh (1996) administered SIS-I on 75 normal subjects with Army background (35 male, and 40 female). The result indicated that female subjects gave more number of responses and male subjects rejected more cards. Female subjects gave more animal responses and male subjects gave more sexual responses.

Cinzia and Roberto (1998) studied thirty hospitalized female obese patients with the help of Cognitive Behavioral Assessment and SIS-I. Findings suggest – (a) subjects with high scores of psycho-physiological activation, depression and
anxiety gave greater number of anatomical content and typical responses; (b) higher scores on neuroticism and psychoticism were associated with lower number of dehumanized content; (c) anxiety and fear content responses were associated with sexual content; (d) lie scores were associated with lower pathological emotional content.

Khromov et al. (1999) administered SIS-I on 91 Russian female adolescents in the age group of 18 – 22 years and to a comparable group of 168 Americans in the age range of 18–23 years. Russian gave fewer pathological anatomy responses, heart responses, rejection responses, but greater number of paranoid, somatic repression scale, movement, anxiety threat, hostility, depressive and sexual responses, as compared to American- adolescent females.

Sarkar et al. (1999) compared the therapeutic efficacy of Bio-Feedback Therapy (BFB) with pharmacotherapy among cases of G.A.D. It included 50 cases of GAD (male–38, Female–12) in the age range of 20 to 55 years (Mean age – 32 years), with their educational qualification ranging from middle to graduation level and belonging to the three religions (Hindu, Muslim, Sikh). They were randomly distributed for two modes of treatment i.e., pharmacotherapy and BFB therapy (25 cases in each group). Their therapeutic effects were measured through their objective scores on Hamilton Anxiety Rating Scale (Hamilton, 1959), and
projective responses on SIS-I in pre and post treatment conditions. The study revealed the equal importance of both therapies in reducing the GAD symptoms, but the same can be better understood on projective instruments as compared to objective means of assessment.

Mitra and Mukhopadhyay (2000) compared the three drug abuser groups namely, heroin (n = 98), brown sugar (n = 79) and tidigesic (n = 70) and matched normals (n = 48) in terms of level of depression, social anxiety and social motive components as well as the differences in pathological contents and indices of personality. The follow-up groups i.e. rehabilitated (n = 6) and the relapsed (n = 35) were also assessed to search out support for the outcome.

Nicolini (2000) conducted a research concerning corporeal perception in subjects with Tensive cephalagia or Migraine, under treatment in an outpatient center for Psychosomatic Medicine. A control group of 16 subjects and two groups of subjects with psychosomatic pathology, matched in respect of age, number of subjects, level of education and professional activity was taken for study. The aim of the study was to test the ability of SIS-I to discriminate the responses of the two groups of subjects with different disorders. The use of SIS-I enabled important information to be acquired regarding the type of perception and of relation existing between each subject
under treatment in the center and his own body, proving to be a useful diagnostic help.

**Kumar et al. (2001)** administered SIS-I on 32 male hospitalized chronic schizophrenics and 32 normals to identify the prominent SIS-I indices among male hospitalized chronic schizophrenics drawn from Agra Mansik Arogyashala. The analysis of results revealed that the schizophrenic group scored lower on total number of responses, animal responses, anatomical responses, sex responses, most typical responses and typical responses.

**Khromov (2001)** studied 19 subjects with Achondroplasia, 18 with traumatically shortened extremities and 95 healthy subjects. The data was analyzed contextually and statistically. The most valuable information was discovered from the projected responses of SIS-I technique, which represents the ego-body image.

**Srivastava (2002)** meta-analyzed the findings of 14 studies on SIS-I with the aim to provide normative data by combining mean and standard deviations of existing studies, and to see if SIS-I indices can differentiate various groups. Studies were pulled in to four groups—normal, coronary heart disease, generalized anxiety disorder and schizophrenia. Critical ratio was computed on combined mean and standard
deviations for inter-group comparison. The results revealed that the SIS-I indices significantly differentiate the comparison groups and can be safely used as a diagnostic tool.

**Kumar, Singh and Mohanty (2004)** conducted a study, which is an extension of earlier work comparing schizophrenic and manic patients on SIS-I indices. The sample consisted of 30 schizophrenic and 30 manic patients drawn from Institute of Mental Health & Hospital, Agra. A control group of 30 participants was also included for comparison. One-way ANOVA was computed with post hoc comparisons. The result indicated statistically significant differences across groups.

**Kumar, Dubey and Kumar (2006)** conducted a study to find out the pattern of responses on SIS-I in manic male and female patients. The sample comprised of 50 manic patients (25 male and 25 female) and 50 normal subjects (25 male and 25 female). The SIS-I was administered individually. The mean, S.D. and t-test were computed to compare the two groups. The Male manic patients scored significantly higher number of Animal responses and lower number of Most Typical responses than Female manic patients. Except slightly higher Rejection of images by Normal female subjects, no significant differences were noticed in normal population.
STUDIES ON SIS-II

Verma et al. (1994) administered SIS-II on 25 adult psychiatric patients in order to see whether it can differentiate between normals and patients on the basis of a few selected variables. The results confirmed the hypothesis that psychiatric patients gave less number of responses, rejected greater number of images, gave greater number of atypical and less number of typical responses. Surprisingly, they gave fewer number of sex responses although anatomical responses were comparable in the two groups.

Rathee et al. (1995) compared 50 psychotics, 50 neurotics and 50 normals on SIS-II. The results showed that psychotic patients tend to produce higher number of responses, low typical responses and low rejection of images. Neurotic patients gave lowest responses, more atypical responses and rejection of images. Normal subjects gave more typical responses and less rejection of images. The clinical groups had more of pathological responses (Pathological Anatomy, Depression and Paranoia) as compared to normal subjects.

Pershad and Verma (1995) administered SIS-II on twenty four cases of schizophrenia and depression to find out differences in their perception (a) of the images specific to elicit vital inner organs, (b) in the animal and anatomical content categories and (c) in the form level of responses. It was
observed that the perceptual concordances for vital organs were 28.8 and 48.7 percent in schizophrenia and depression respectively. Schizophrenics perceived more animal and less anatomical contents on SIS images. Depressive group had relatively better form level as judged by the frequency of 'most typical' responses. Findings indicated that even the simplest content analysis of SIS had diagnostic significance.

**Verma et al. (1996)** administered Eysenck’s PEN inventory and SIS-II on 32 psychiatric patients, in order to find the interdependence of SIS variables on certain personality dimensions. The result shows that (a) the number of "most popular" responses depend upon the education of the subject, (b) psychoticism scores tended to influence atypical and pathological responses, (c) neuroticism score influence number of typical responses, (d) the lie score was found inversely related to perception of human, movement and pathological responses, and (e) extraversion was not related to any of the SIS variables.

**Bailey and Myrstein (1996)** investigated the relationship between the SIS-II and a self-report paranoia scale in a college-age students sample (n=60). The content of written responses to the SIS-II was analyzed for paranoid content. The result indicated that two of the scoring methods, those for eye content and paranoid ideation, were positively associated with self-reported paranoia scale score.
Singh and Banerjee (1996) studied normals and O.C.D. patients on SIS-II. The results revealed that the patient group could be differentiated through the test.

Mitra and Mukhopadhyay (1996) studied forty adult male opiate drug addicts who were sampled into three subcategories namely heroin (n=19), brown sugar (n=12) and tidigesic (n=9) groups. The results showed that SIS pathological scales do not differentiate the groups.

Singh and Dubey (1997) administered SIS-II on 50 drug dependent and 50 alcohol dependent cases. The results indicate that both the groups were high on anatomy, animal and human responses. The alcohol group was low on total number of responses and most typical responses.

Pershad et al. (1997) administered SIS-II on 50 normals, 57 neurotics and 70 psychotic patients. It was observed that most typical responses and sex responses were minimum in the psychotic group as compared to their normal healthy counterparts. Movement responses and rejection of images were high in pathological groups.

Singh et al. (1997) examined SIS-II protocols of 100 cases (50 each of alcohol and drug dependence) after a follow-up period of six months. The patients who 'improved' and 'failed to improve' were kept in separate group and were compared for selected SIS-II indices. The findings suggest that SIS-II is a sensitive tool to be used as a prognostic indicator to a certain extent.
Nehra et al. (1997) aimed to find out the personality pattern of patients suffering from speech defects with the help of SIS-II and to find the contents helping in understanding the psychopathology and inner cry of such patients. To achieve the above objectives, eighteen cases having speech problems were administered SIS-II individually. The results showed better productivity (greater number of responses), low rejection of images, disturbed interpersonal relations with somatic preoccupation (higher anatomical but lower sex responses with moderate human and most typical responses). The cases who rejected more images were found to give low number of responses and most typical responses.

Singh and Dwivedi (1997) administered SIS-II to a 35 years old, educated, married lady who was suffering from peptic ulcer. Somatic inkblot images brought out her cold feelings for her husband, conflicting family life, broken love affair, affectional deprivation and suicidal ideation. SIS worked as a time machine and helped her in processing a lot of unprocessed unconscious material.

Singh and Dwivedi (1998) aimed at studying the responses on SIS-II variables of managers and students. The sample consists of 50 managers and 100 students. Findings showed significant differences in total number of responses, animal responses and sex responses.
Pandey et al. (1999) examined the stability of SIS-II response contents on a sample of 30 subjects over time in two ways, i.e. it analyses the consistency of responses evolved by individual images in a number of people as well as it measures an individual’s consistency in responding to all the 62 images of SIS-II. Besides this, it also attempts to present an appraisal of the test-retest reliability of some commonly used SIS-II quantitative indices and responses consistency of personality dimension related SIS-II image cluster as proposed by Dubey and associates (1995). Separate analysis of response consistency for unstructured and semi-structured images has also been done in this study to substantiate the speculation regarding unstructured images yielding lower response consistency as compared to semi-structured images.

Singh et al. (1999) reported differences in total number of responses on SIS-II in male and female adolescents, adults, late adults and old aged subjects. High and low scorer males (n=240) and females (n=240) were identified by the median cut-off score on the criterion of total number of responses (R). Chi-square tests between male and female adolescents, adults and late adults showed significant differences, while old aged subjects failed to show a significant sex difference. Within sex comparisons showed significant differences only in females across age groups. These results thus demonstrate the effectiveness of R in differentiating personality characteristics of males and females across different age groups.
Singh et al. (2000) administered the SIS-II on a sample of 35 professional murderers, who have committed more than one murder and have been lodged in a prison in Ranchi. The findings suggest that they have low productivity, poor imaginative capacity, low intellectual ability, low emotional control, and non-conformity of social norms and poor interpersonal relationship. They have also shown low concern for people and have withdrawn tendency.

Kumar (2000) meta analyzed the findings of different studies on SIS-II, which appeared in SIS Journal of Projective Psychology and Mental Health, 1994-2000 (January), to provide combined mean and standard deviation of various groups, and to see if SIS-II indices could differentiate the groups statistically. The studies were combined into five groups based on specified criteria: Normals, Neurotics, Psychotics, Substance dependents and Murderers. Critical ratio was computed on combined mean and standard deviation for inter-group comparisons. Results indicate that SIS-II indices do differentiate the comparison groups.

Singh et al. (2001) administered the SIS-II test to 30 professional murderers and the result was compared with normal subjects. The findings suggest that the SIS-II is a powerful psychological test to discriminate murderers from normal population.
Pandey et al. (2001) examined the effect of age on SIS-II response contents. Three groups of subjects belonging to rural area of Gopalganj district in the age range of 6-12 (Children) 13-20 (adults) and 21- 40 years (adults) were individually tested on the SIS-II. Responses were scored for 9 indices. Analysis of the data revealed an age related increasing trend for various categories of sex responses as well as for movement, most typical, atypical, and rejection responses. A reverse trend (i.e. decrease in score with increasing age) was obtained for human responses. Age specific changes in other SIS-II indices were also observed. Contrary to earlier findings, subjects of the present study across all age groups showed slightly elevated score on atypical response index of SIS-II.

Mishra and Mishra (2001) studied the SIS-II is both a diagnostic and therapeutic instrument. It was administered to an 18 years female college student who had lost her mother in the early childhood and was staying with her uncle who had no children. She had difficult relationship with her stepmother. Her responses to SIS images were able to bring out her inner cry and depressed feelings.

Singh and Mishra (2001) administered the SIS-II to a 20 years old male student of graduate level who had a history of masturbation for last 3 years with a frequency of atleast once a day. Because of this habit he developed guilt feeling and had a fear of failure. He got familiar with a female classmate but
never had physical relation with her. He developed symptoms of withdrawal, avoiding meeting people, lack of interest in study, feeling of insecurity and odd thinking to commit suicide. He was given re-educative psychotherapy to channel his energy to academic activities. The result was very positive and the subject showed significant improvement. His suicidal ideation has gone and he has developed positive attitude towards life.

Chaudhury et al. (2001) evaluated fifty consecutive patients with Alopecia Areata (AA) and an equal number of age and sex matched control subjects without any physical or psychiatric disorders with psychiatric interview and mental status examination, Sinha Anxiety Scale, Carroll Rating scale for Depression, Toronto Alexithymia scale, the Presumptive Stressful Life Events Scale and the SIS-II. Analysis revealed that patients with AA were significantly more anxious and depressed, obtained significantly higher Alexithymia scores and reported significantly more stressful life events as compared to controls. The SIS-II test revealed psychological disturbances in 52% patients.

Rathee et al. (2002) administered SIS-II to assess the diagnostic value among sub groups of psychotic and neurotic patients. The findings reveal that total number of responses, atypical and pathological responses were able to discriminate among sub-groups of psychotics. Likewise, R, MT, atypical, movement, rejection of images, human, animal and sex
responses were able to discriminate among sub groups of neurotics. The test comments of both groups of psychotics and neurotics proved to be more useful to understand their underlying psychopathology.

**COMPARATIVE STUDIES ON SIS AND RORSCHACH**

Dwivedi et al. (1995) administered the SIS-II and the Rorschach Inkblot Tests on 50 Normal, 50 Neurotic and 50 Schizophrenic subjects using the standard procedure to prepare profiles of the three groups of subjects and to find out the relationship between the common indices of the two tests. Out of 8 indices 5 indices could discriminate schizophrenics and 3 could discriminate neurotics from normals. Indices however differed on the SIS and the Rorschach. The correlations of common indices on tests were significant on one third of the indices.

Cassell and Dubey (1996) administered SIS-I and SIS-I video and the Rorschach tests on a 42 years old female patient. SIS and the Rorschach were able to bring out her inner cry and depressive contents related to her father’s death due to cancer and her own recovery after cancer. SIS images have been found a powerful media to take the person back in time and creating hypnotic like effect helping the person in catharsis and finally proving to be an effective therapeutic tool.
Mishra and Dwivedi (1997) compared the diagnostic indices of the SIS-II with the Rorschach test in normal, neurotics, and schizophrenics. The sample comprised of 50 normal, 50 neurotics and 50 schizophrenics. The results suggested that the diagnostic confidence achieved by the SIS-II and the Rorschach in diagnosing the neurotics and schizophrenics compares well. They further suggested that both the tests provide ample support to the theory that SIS-II provides certain additional diagnostic information which is not available through the Rorschach. The result also suggested that the SIS-II indices as compared with the Rorschach indices discriminate better between normal subjects and paranoid schizophrenics whereas the Rorschach indices discriminate better between neurotics and undifferentiated schizophrenics.

Banerjee et al. (1998) attempted to trace the salient features of SIS measures on the basis of subtle common indices of the Rorschach test by Klopfer method. The SIS-I and the Rorschach inkblot test were administered on 15 heroin addicts and 15-matched normals. Seven common indices of the two tests were considered as comparative measures assessed on the two samples. Four indices were proved to be successful discrimination indices between heroin addicts and normal.
Ambiguity in Rorschach images resulted in a higher number of responses in 5 out of 7 indices. Still, a lower number of responses of the SIS was reported to be more in the predicted direction.

Rathee et al. (1998) attempted to find out diagnostic validity of SIS-II against the Rorschach test among psychopathological cases of the Armed forces. The SIS-II was administered on 200 psychopathological cases. Statistical analysis of data revealed that out of 10 common indices of both tests, five variables in schizophrenia, four in affective psychosis, and seven in specified psychosis, five in Anxiety, and four in Depression and seven in Hysteria showed high and positive correlation between common indices of both the tests. The findings predict high diagnostic validity of SIS-II against that of Rorschach among six psychopathological groups of the Armed forces.

Kaur and Verma (1998) administered Rorschach and SIS-II on 32 psychiatric patients in order to see their interrelation on selected variables. Both the tests showed some degree of overlap with significant correlations between the two tests on Movement, Human, Animals and Popular responses, but insignificant correlations for Anatomy, Sex, F+ and Total responses.
Kumar et al. (2003) attempted to find out the correlation of SIS – I profile with Rorschach in manic patients. SIS – I and Rorschach were administered on a group of 30 manic patients drawn from Institute of Mental Health and Hospital, Agra. Raw scores on common indices of the tests were converted into percentages. Percent scores of the indices on SIS – I for normal subjects were taken from a previous study (Kumar et al., 2001). The critical ratio was computed on the scores of manic and normal subjects. The results revealed that Anatomy, Typical and Atypical responses were able to differentiate the groups. Pearson’s product moment correlation was calculated on the percent scores of Rorschach and SIS – I on common indices in manic patients. The obtained co-efficient of correlations were significant on all the indices except for Most Typical responses.