Norms of the Rorschach Test for Indian Subjects

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Abstract

Background : The clinical utility of the Rorschach test in Indians is hampered by the absence of reliable normative data.

Method : The Rorschach by Dlopfer's method was administrated to 1256 subjects consisting of 300 normal army personnel, 300 normal civilians, 250 schizophrenics, 300 neurotics and 106 patients with organic disorders.

Results : The Rorschach protocols of normal Indian army personnel and normal civilians showed significant differences from one another and also from the western norms. These differences are culturally determined and are not indicative of low intelligence or psychopathology. Patients with schizophrenia, neurosis, head injury and epilepsy show significant differences from the records of normal subjects. The protocols of army schizophrenics show significant deviations from those of normal army personnel and these changes revert to normal with clinical recovery.

Conclusion : The Rorschach test is not a culture free test as claimed earlier. In view of the differences from Western norms, Rorschach protocols of Indians should be interpreted using the norms for Indians. In the case of army personnel the norms for army personnel should be used. While the use of the Rorschach to study the personality patterns of normal individuals and as an aid to clinical diagnosis was strongly supported, the findings of the study indicate that the test can also be employed to assess therapeutic response of patients with schizophrenia.

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Key Words : Rorschach test; norms; schizophrenia; neurosis

Introduction

In the absence of laboratory diagnostic tests, psychological tests assist the psychiatrist in objective assessment of their patient. Most of these tests, however, have limited value because they depend on the subject's education, background and culture. Projective tests like the Rorschach attempt to overcome many of these difficulties. The clinical use of the Rorschach requires the existence of norms [1,2]. Recent research has revealed that norms cannot be used from one country to another and differences within the same cultural group are also to be found [3,4]. The Rorschach norms established by researchers in India differ considerably [5]. Military population has a subculture different from that of the civilian population, since additional stresses operate on them. Moreover, strenuous training, rigid discipline and regimentation of army population change their application. Norms created by D'Netto and Dubey reported marked differences in the responses of the military personnel as compared to the normal civilians and also between themselves [5]. Most of these studies had a number of shortcomings the most important being the relatively small sample size from one center, which was not representative of the service. In the absence of

reliable norms, mental health professionals in India are left with no alternative but to interpret Rorschach on the basis of own experience, which results in subjective bias.

Material and Methods

The sample included 300 normal army personnel from all arms and services, with at least 5 years of service drawn on a random basis from local units and 300 normal civilians in the age groups of 17 – 64 years, drawn on a random basis from Bareilly, Gauhati, Thane and Cannanore districts. None of them suffered physical or mental illness and had no past history of mental illness. Regional classification was based on origin. Psychiatric diagnoses were based on ICD 10 criteria. Patients with schizophrenia (F 20) and neurosis (F 40, F 41, F 44, F 45, F 48) were drawn from in-patients and outpatients of MH Bareilly, Mental Hospital Bareilly and 151 BH. Patients with head injury, epilepsy and miscellaneous organic conditions (viz dementia, stroke, encephalitis etc) were drawn from inpatients of MH Bareilly and 151 BH. Rorschach test was conducted when patient was fully conscious and acute symptoms had subsided. The test was not done on the day of a seizure or day following a seizure. All subjects gave informed consent. Each subject was initially interviewed to collect personal data and exclude psychiatric disorder. Then the Rorschach test was administered following the technique

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of Klopfer [5]. The data collected was tabulated and analysed. For comparison the chi square test was used.

Results

The demographic data (Table 1) shows no statistically significant difference in the age of normal army and civilian samples. The army sample consisted only males. Due to practical difficulties females even among civilians were under represented. Since the major part of the work was carried out at Bareilly, subjects from North India over-represented. The number of responses, reaction time, percentage of response and frequency of rejection is shown in Table 2. The location and the determinants are shown in Table 3 and Table 4 respectively. Among the army population, normal subjects gave statistically higher FM ($X^2=6.46$, $df=1$, $p<.05$) and FC ($X^2=4$, $df=1$, $p<.05$) and significantly lower C ($X^2=4.92$, $df=1$,

$p<.05$) responses as compared to schizophrenics. In the civilian population also a similar trend was observed. Patients with head injury gave significantly higher C responses as compared to both normal army personnel ($X^2=4.33$, $df=1$, $p<.05$) and normal civilians ($X^2=4.06$, $df=1$, $P<.05$). Normal army personnel had significantly lower F% as compared to army schizophrenics ($X^2=4.93$, $df=1$, $p<.05$) and a similar trend was also observed in the civilian group. Normal army personnel had significantly higher F+% as compared to army schizophrenics ($X^2=8.06$, $df=1$, $p<.01$). Similarly normal civilians had significantly higher F+% as compared to civilian schizophrenics ($X^2=6$, $df=1$, $p<.05$). Patients with head injury had significantly lower F+% compared to both normal army personnel ($X^2=5.4$, $df=1$, $P<.05$) and normal civilians ($X^2=3.99$, $df=1$, $P<.05$). Normal army personnel gave significantly higher

Table 1

Demographic characteristics of the subjects

Characteristic	Army Personnel				Civilians			Army personnel organic conditions		
	Normal n=300	Neurosis n=100	Schizophrenia n=50	Schizophrenia recovered n=30	Normal n=300	Neurosis n=200	Schizophrenia n=200	Head injury n=45	Epilepsy n=31	Miscellaneous n=30
Age (in years)										
Mean	27.2	30.4	28.9	30.9	29.9	33.8	33.9	27.7	28.5	39.9
Range	22-48	19-42	19-56	21-41	17-64	18-75	12-82	18-50	17-55	22-80
Distribution										
< 20	-	1	6	0	74	8	14	3	4	0
20 - 24	33	12	12	5	56	37	28	13	7	5
25 - 29	1216	39	12	12	43	40	37	13	6	5
30 - 34	61	24	8	5	37	34	32	9	8	3
35 - 39	48	14	8	4	23	27	31	3	1	3
40 - 44	22	10	3	3	19	29	18	2	2	5
45 - 49	8	-	1	1	19	13	13	1	-	4
50 - 54	2	-	-	-	12	10	15	1	1	1
55 - 59	-	-	-	-	8	1	7	-	2	-
60 - 64	-	-	-	-	9	1	1	-	-	-
65 +	-	-	-	-	-	-	4	-	-	4
Sex										
Male	300	100	50	30	211	133	160	44	28	28
Female	-	-	-	-	89	67	40	1	3	2
Education										
Illiterate	3	2	-	-	38	18	31	1	2	1
1 - 5	35	9	8	2	30	17	23	7	15	4
6 - 10	210	54	32	20	87	95	77	28	16	18
10 +	52	35	10	8	145	70	69	9	8	7
Regional distribution										
North	156	74	31	24	132	174	187	36	21	21
South	57	9	9	4	66	10	-	4	3	6
West	60	9	4	1	69	12	6	2	1	2
East	27	8	6	1	11	4	7	3	6	1
Domicile (in percentage)										
Rural	82	88	90	90	76	57	75	38	24	22
Urban	18	12	10	10	24	43	25	7	7	8
Marital status (in percentage)										
Married	88.3	87	70	80	57.3	74	56	24.4	67.7	86.7
Unmarried	11.7	13	30	20	42.3	25	40.5	75.6	32.3	13.3
Divorced, Widow, Widower	-	-	-	-	3	1	3.5	-	-	-

Table 2

Total number of responses, reaction time, percentage of response per card, frequency of rejection of cards and number of cards rejected by the subjects

	Army Personnel				Civilians			Army personnel organic conditions		
	Normal	Neurosis	Schizophrenia	Schizophrenia recovered	Normal	Neurosis	Schizophrenia	Head injury	Epilepsy	Miscellaneous
	n=300	n=100	n=50	n=30	n=300	n=200	n=200	n=45	n=31	n=30
Total number of responses										
Maximum	51	24	60	22	74	71	27	26	20	29
Minimum	6	5	4	5	5	5	3	2	3	6
Mean	12.3	10.9	13.02	12.1	17.3	13.1	10.5	13.2	10.9	14
Reaction time (in secs)										
Range	5.8-188	15-168	20-300	17.1-134.4	12.7-167.3	30-227.1	5-300	33.3-312	18.1-194.7	24-116
Average right	53.5	104.6	55.8	51.0	48.7	108.7	49.9	71.3	65.4	54.5
Ach	24.3	26.6	22.9	17.8	25.3	39.4	24.3	28.5	24.5	31.4
Ch	23.9	24.9	25.9	24.3	25.5	38.829.7	26.3	25.4	30.5	
Percentage response per card										
I	11.3	11.8	12.3	11.3	7.0	12.4	11.2	10.4	11.8	11.2
II	10.5	10.9	11.4	12.6	8.3	9.6	11.5	11.1	11.5	10.5
III	11.0	11.5	11.7	11.0	9.4	10.7	11.1	10.6	9.1	11.5
IV	8.4	9.0	9.7	9.3	9.0	9.2	8.9	7.9	8.0	10.0
V	8.9	9.2	8.8	8.8	7.8	8.7	9.6	7.6	10.3	9.1
VI	8.2	8.3	7.7	6.9	7.7	8.2	9.6	7.9	7.1	7.9
VII	9.5	8.4	8.1	8.5	9.6	9.4	8.5	8.1	8.6	9.5
VIII	11.7	12.6	10.6	10.4	10.3	11.8	11.3	12.5	10.6	12.4
IX	7.8	7.1	9.1	8.2	8.3	7.3	8.9	9.1	7.7	8.0
X	12.9	11.2	10.4	12.6	14.9	12.6	11.4	15.5	15.3	10.0
Frequency of rejection of individuals Rorschach cards										
	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)
I	7 (2.3)	9 (9)	5 (10)	- (-)	8 (2.7)	11 (5.5)	12 (6)	4 (8.9)	1 (3.2)	2 (6.7)
II	21 (7)	11 (11)	6 (12)	2 (6.7)	12 (4)	19 (9.5)	16. (8)	3 (6.7)	5 (16.1)	3 (10)
III	16 (5.3)	8 (8)	4 (8)	3 (10)	9 (3)	19 (9.5)	15 (7.5)	8 (17.8)	7 (22.6)	2 (6.7)
IV	49 (16.3)	10 (10)	8 (16)	4 (13.3)	29 (9.7)	30 (15)	38 (19)	6 (13.3)	7 (22.6)	3 (10)
V	12 (4)	11 (11)	3 (6)	2 (6.7)	14 (4.7)	9 (4.5)	16 (8)	8 (17.8)	- (-)	1 (3.3)
VI	47 (15.7)	19 (19)	13 (26)	7 (23.3)	56 (18.7)	43 (21.5)	39 (19.5)	9 (20)	8 (25.8)	4 (13.3)
VII	39 (13)	31 (31)	10 (20)	4 (13.3)	34 (11.3)	35 (17.5)	43 (21.5)	9 (20)	5 (16.1)	4 (13.3)
VIII	3 (1)	1 (1)	5 (10)	2 (6.7)	4 (1.3)	3 (1.5)	13 (6.5)	2 (4.4)	2 (6.5)	1 (3.3)
IX	77 (25.7)	35 (35)	14 (28)	7 (23.3)	55 (18.3)	76 (38)	51 (25.5)	7 (15.6)	8 (25.8)	6 (20)
X	26 (8.7)	20 (20)	12 (24)	3 (10)	17 (5.7)	32 (16)	41 (20.5)	5 (11.1)	4 (12.9)	3 (10)
No of cards rejected by a subject										
1	88 (29.3)	21 (21)	11 (22)	3 (10)	75 (25)	41 (20.5)	35 (17.5)	8 (17.8)	7 (22.6)	7 (23.3)
2	57 (19)	14 (14)	5 (10)	9 (13)	38 (12.7)	26 (13)	22 (11)	8 (17.8)	6 (19.4)	3 (10)
3	23 (7.7)	12 (12)	6 (12)	2 (6.7)	17 (5.7)	22 (11)	23 (11.5)	2 (4.4)	1 (3.2)	1 (3.3)
4 and more	7 (2.3)	16 (16)	7 (14)	2 (6.7)	7 (2.3)	23 (11.5)	26 (13)	5 (11.1)	5 (16.1)	3 (10)

Table 3

Location of responses

	Army Personnel				Civilians			Army personnel organic conditions		
	Normal	Neurosis	Schizophrenia	Schizophrenia recovered	Normal	Neurosis	Schizophrenia	Head injury	Epilepsy	Miscellaneous
	n=300	n=100	n=50	n=30	n=300	n=200	n=200	n=45	n=31	n=30
	N	N	N	N	N	N	N	N	N	N
W	32.9	38.3	35.0	39.6	28.3	35.4	40.2	37.4	42.8	33.2
D	55.9	53.5	44.7	51.9	57.9	50.6	49.8	50.7	51.0	50.8
d	7.1	2.9	10.1	5.8	8.0	7.5	3.9	6.6	3.5	9.1
Dd	2.2	1.2	2.8	1.1	3.6	3.5	1.9	3.4	0.6	4.8
S	1.8	4.1	4.6	1.7	2.3	2.8	1.7	2.0	1.8	4.8
DW	-	-	2.6	-	-	-	2.6	-	0.3	-

Table 4**Determinants of response**

Determinants	Army Personnel				Civilians			Army personnel organic conditions		
	Normal	Neurosis	Schizo-phernia	Schizo-phernia recovered	Normal	Neurosis	Schizo-phernia	Head injury	Epilepsy	Miscellaneous
	n=300 N (%)	n=100 N (%)	n=50 N (%)	n=30 N (%)	n=300 N (%)	n=200 N (%)	n=200 N (%)	n=45 N (%)	n=31 N (%)	n=30 N (%)
F	4.5 (36.0)#	4.95 (44.1)	6.9 (52.7)	5.1 (42.3)	7.1 (41.2)#	5.0 (38.0)	5.5 (52.4)	6.4 (49.8)	5.7 (52.5)	7.3 (52.3)
M	0.9 (7.4)	0.7 (6.0)	0.8 (6.5)	1.3 (10.7)	1.6 (9.1)	1.3 (9.5)	0.6 (5.1)	0.8 (6.2)	0.5 (4.4)	1.1 (7.6)
FM	3.6* (29.3)	1.8 (16.8)	1.7 (12.7)	2.3 (19.2)	4 (22.9)	3 (22.8)	1.4 (13.2)	2.5 (18.7)	1.5 (14.2)	2 (14.1)
M	0.13 (1.0)	0.1 (0.6)	0.1 (0.5)	0.1 (0.8)	0.2 (0.9)	0.2 (1.2)	0.3 (0.3)	0.1 (0.5)	0.1 (0.6)	0.2 (1.2)
Fk	0.4 (0.5)	0.02 (0.02)	0.2 (1.4)	0.1 (1.1)	0.13 (0.8)	0.2 (1.2)	0.2 (2.0)	0.1 (0.7)	0.3 (2.7)	0.1 (1.0)
K	0.4 (0.7)	0.01 (0.1)	0.04 (0.2)	-	0.1 (0.5)	0.3 (2.5)	0.03 (0.3)	0.2 (1.4)	0.1 (0.9)	0.1 (1.0)
FK	0.4 (3.5)	0.6 (5.5)	0.3 (1.2)	0.5 (4.1)	0.6 (3.5)	0.5 (3.5)	0.4 (3.8)	0.2 (1.2)	0.1 (1.2)	0.2 (1.7)
Fc	1.1 (8.7)	1.6 (14.4)	1.2 (8.9)	1.3 (10.4)	2.0 (11.4)	1.4 (10.2)	1.0 (9.9)	1.1 (8.1)	1.1 (9.7)	0.7 (5.3)
C	0.04 (0.3)	0.01 (0.1)	-	0.03 (0.3)	0.1 (0.3)	0.1 (0.3)	0.1 (0.4)	0.01 (0.2)	-	0.3 (2.1)
C'	0.2 (1.6)	0.3 (2.9)	0.4 (2.8)	0.3 (2.8)	0.4 (2.6)	0.3 (2.0)	0.3 (2.5)	0.2 (1.9)	0.16 (1.5)	0.3 (1.9)
FC	1.0* (7.9)	0.8 (7.5)	0.2 (1.7)	0.7 (5.8)	0.8 (4.6)	0.6 (4.9)	0.4 (3.4)	0.5 (4.0)	0.9 (8.3)	0.5 (3.3)
CF	0.2 (2.1)	0.2 (1.6)	0.6 (2.2)	0.1 (1.1)	0.3 (1.8)	0.5 (3.6)	0.64 (6.1)	0.5 (3.9)	0.2 (1.8)	0.6 (4.5)
C	0.02* (0.2)	0.02 (0.2)	0.7 (5.5)	0.2 (1.4)	0.1 (0.5)	0.1 (0.5)	0.09 (0.9)	0.6 + (4.9)	0.1 (1.2)	0.6 (4.3)
F+%	68.3*	58.4	38.9	63.1	64.5**	60.3	39.5	43.7+	48.3	43.7

significantly different from normal civilians; * Significantly different from army schizophrenics; +Significantly different from normal subjects; **Significantly different from civilian schizophrenics

Table 5**Contents of responses**

Contents	Army personnel				Civilians			Army personnel organic conditions		
	Normal	Neurosis	Schizo-phernia	Schizo-phernia recovered	Normal	Neurosis	Schizo-phernia	Head injury	Epilepsy	Miscellaneous
	n=300	n=100	n=50	n=30	n=300	n=200	n=200	n=45	n=31	n=30
H	8.9	8.0	11.7	14.6	11.9	11.5	11.0	10.4	7.1	10.7
Hd	5.8	5.4	6.3	2.7	4.9	5.7	4.1	4.7	5.6	9.5
A	47.4	43.2	34.7	51.1	43.3	39.4	41.5	40.9	5.1	35.1
Ad	51.1	47.0	36.9	54.4	49.3	44.5	43.5	44.9	46.9	40.1
A obj	0.8	1	1.2	0.6	1.6	1.8	0.95	0.84	0.6	0
A t	8.4	11	12	4.4	9.8	7	14.9	6.4	5.9	6
Sex	6.7*	4.1	4	0.6	1.4	2.4	3.9	0.2	3.5	2.6
PI	5.8	8.7	6.9	6.3	5.3	7.3	9.4	8.8	14.2	5.5
N	3.9	6.9	3.4	4.7	3.7	5.4	4.7	8.1	3.2	6.2
Obj	3.3	3.5	5.1	4.4	6.3	6.5	3.8	5.7	4.1	9.1
Cl	2.1	2.0	3.8	3.6	1.6	2.5	1.0	2.2	1.5	1.4
PI	0.8	0.6	0.9	0.8	0.4	0.9	0.95	0.7	1.8	0.7
Arch	1.7	2.0	2.9	1.1	1.6	2.4	1.8	2.2	1.5	2.1
Cn	-	-	2.9	1.4	-	-	-	3.9	1.2	2.1
P	3.1+	2.8	2	3.4	3.7	2.9	2	2.6	2.7	2.2

sex responses (Table 5) as compared to normal civilians ($X^2=3.97$, $df=1$, $P<.05$). Normal army personnel gave higher popular responses as compared to army neurotics and schizophrenics (Table 6). Recovered schizophrenics gave popular responses similar to normal army personnel.

The Rorschach profile of the various groups are as follows-

Normal subjects:

- Number of responses of less than 15 for army and less

than 20 for civilians.

- Delayed reaction time (average 53.3 seconds and 48.7 seconds for army and civilian subjects respectively).
- Rejection not more than 3 cards, usually cards IX, IV and VI in army personnel and cards VI, IX and VII in civilians in order of frequency.
- Slight increase in W for army personnel and D location categories for both army and civilian subjects.

Table 6**Frequency of the popular responses**

Card No.	Popular response	Army Personnel N	Civilians N
I	Bat, butterfly, bird	164	169
II	Two animals	90	135
II	Female genitals	45	-
III	Two persons	116	151
IV	Bird, bat butterfly	54	-
V	Bird, bat butterfly	226	210
VI	-	-	-
VII	Two animals	53	66
VII	Female genitals	42	-
VIII	Two animals	208	225
IX	-	-	-
X	Spider, scorpion	109	110

- Low M and high FM responses. Texture responses of army personnel was less than in civilians.
- A mild degree of introversion as shown by the ratio of M: sum C and (FM+m): (Fc+c+C').
- High A% by both groups and sex responses only by army personnel.
- Low P% and F+% compared to Klopfer's norms.
- Only six of Klopfer's popular responses were given. Two animals occurred as popular response to upper D of Card VII. In addition army personnel gave bird, bat, butterfly to card IV and female genitals to card II and VII as popular response.

Neurotic patients

- Constricted protocols: average responses 10.9 and 13.1 for army and civilian patients respectively.
- Reaction time significantly prolonged : average 104.6 seconds and 108.7 seconds for army and civilian patients respectively.
- Rejection of 4 cards common: in order of frequency cards IX, VII, X and VI by army patients and cards IX, VI, VII and X by civilian patients.
- A slight increase in 'W', 'D', and 'dd +s' responses.
- An emphasis in FK and FC responses in army patients.
- A mild degree of introversion as shown by the ratio of M: Sum C (Fm+m) and slight underproduction on 3 cards.
- H% and A% less than respective normal subjects.
- P% and F+% less than respective normal subjects.

Schizophrenics

- Productivity more than normal subjects in army patients (average 13.02) and very low in civilian patients (average 10.5).
- Reaction time within normal range, average 51.0 seconds and 49.9 seconds for army and civilian patients respectively.
- Rejection of 4 cards common: usually cards IX, VI, X and

VII in army and cards IX, VII, X and VI in civilian patients.

- Increased W in both groups. Increased S in army patients. Confabulatory responses present in both groups.
- Movement responses less than in normal subjects and comparatively lesser in civilian patients as compared to army patients.
- F% more than 50% in both groups.
- Ratio of M: Sum C in opposite direction compared to normal subjects.
- Increased CF + C responses with Cn responses in army patients.
- A% less than normal subjects. Increased At and blood responses. Increased sex responses as compared to normal subjects in civilian patients only.
- Significantly lower F+% and low F% as compared to normal subjects.

Organic conditions

- Low productivity in epileptics (average 10.9). High in head injury (average 13.2) and miscellaneous organic conditions (average 14.0)
- Slow reaction time (71.3 seconds and 65.4 seconds in head injury and epilepsy respectively).
- Rejection of more than 4 cards common.
- A slight increase in D location category. Confabulatory response present in epileptics.
- High F% and low movement responses as compared to normal subjects
- Ratio of M: Sum C in opposite direction as compared to normal subjects.
- High A% by all groups and high sex responses by epileptics and patients with miscellaneous organic conditions as compared to normal subjects.
- Cn responses present.
- F+% and P% lower than normal subjects.

Discussion

The sample of 1256 in the present investigation, consisting of 300 normal army personnel, 300 normal civilians, 250 schizophrenics, 300 neurotics and 106 patients with organic disorders is the largest carried out in India so far. Moreover this is the first multicentric study conducted at four corners of India, viz, Uttar Pradesh, Maharashtra, Kerala and Assam. Since the normal sample has representatives from various parts of Indian Army and also from various regions of Indian civilian population, the responses given by them can be considered as the normative response of the average Indian soldier and civilian. At least they are more representative than the available norms that are all from single locations.

Productivity

The average number of responses given by normal

civilians was more than all other groups (statistically not significant). Apart from army schizophrenics all other groups of army personnel gave less responses than their civilian counterparts. However, while army schizophrenics gave more responses than army normals, the opposite trend was seen in the civilian population (Table 2). A tendency to inhibit spontaneous expression of responses to stimuli due to discipline could be the cause of the low productivity by normal army personnel. The army schizophrenic showed better productivity probably because of loss of inhibition. The army schizophrenics also performed better than the civilian schizophrenics. This could be due to the fact that all army patients were acute cases while many of the civil schizophrenia patients were chronic cases. Neurotics, both army and civil, as expected gave very short profiles because of increased inhibition. The low productivity of the army personnel is in agreement with few studies [5] though D'Netto et al [5] reported somewhat higher values of 16, which could be due to differences in the sample characteristics. The productivity of our normal civilian subjects is lower as compared to western norms [6]. This most probably is a cultural difference though the effect of education and socio-economic status on productivity also needs to be evaluated [3].

Reaction Time (RT)

The army subjects had longer RT as compared to civilians, which could be due to the overall inhibitory effect of army training on the soldier. This finding is contrary to the findings of earlier workers [5] and therefore needs further evaluation. The significantly longer RT of neurotics as compared to the schizophrenics is in agreement with others [5]. Neurotics are generally more inhibited and, therefore, take longer time in responding. On the other hand, acute schizophrenics are quick and impulsive as the normal inhibition is lifted in them. This trend is in agreement with some studies though one study observed longer RT in schizophrenics which may be attributed to differences in the sample characteristics [5]. A chronic schizophrenic is likely to have a longer RT as compared to an acute schizophrenic. The RT of head injury and epilepsy patients was significantly more than the RT of the normal subjects, which is in agreement with Somasundaram [5].

Rejection of cards

Rejection of cards is common even among normal individuals. Card IX is most frequently rejected and rejection of cards II, IV and VI also may not be significant. Our findings are along similar lines except that in both the normal groups card II was rejected much less frequently. Patients with neurosis and schizophrenia rejected more cards as compared to normals while

patients with organic illness tended to reject more cards as compared to all other groups, which is consistent with earlier findings [5]. According to this result if 4 or more cards are rejected it would be abnormal.

Location of response

The percentage of W and D responses in both normal army and normal civilians was on higher side. Similar findings were reported in normal civilian and army population [5]. Therefore a higher D% is characteristic of the normal Indian population. The small detail response of our normal subjects was on the lower side of the normal range. These findings are not in agreement with Prabhu's study on normal civilians [5] and D'Netto's on normal army personnel [5] but are in agreement with the Dubey's army sample [5]. This appears to be due to differences in sample characteristics. While schizophrenics and neurotics gave more W responses, the F+% of the former was significantly lower and indicates their poor organizational capacity. The D responses were given maximum by normals followed by neurotics and schizophrenics in both army and civilian population, which is in conformity with Dubey [5]. Interestingly enough, recovered schizophrenics gave D responses similar to the normal population.

The maximum S response was given by schizophrenics followed by neurotics and normals in the army sample and maximum by neurotics followed by normals and schizophrenics among civilians. As S response indicates oppositional traits, it is expected to be more in psychiatric patients. Only schizophrenics and few patients with epilepsy gave confabulatory responses, while in all other groups this pathological response was not observed. Confabulatory responses are pathological in nature, and are characteristics of schizophrenia [5,7,8]. Patients with organic conditions gave higher W responses as compared to normal subjects and patients with epilepsy gave the highest W responses among all subjects. Patients with organic conditions gave high Dd responses except patients with epilepsy who gave the lowest Dd responses among all the groups. This is contrary to the findings of Somasundaram et al [5] but is in agreement with Bohm [7].

Determinants

Table 5 shows that there was no statistically significant differences in the factors determining the nature of responses between normal army personnel and normal civilians, though there was a trend towards higher FM responses in the former.

Movement: The normal army sample gave less human movement (M) responses as compared to the normal civilians. The "M" is hypothesized to be related

creativity [5]. The army does not train the personnel to be more creative as the whole organization is highly conservative hence the low M. The high FM in our normal army sample is in agreement with Dubey [5] but not with D'Netto et al [5]. The presence of a larger mean value for FM does not necessarily mean that the individual indulges his impulses to immediate gratification. It simply means that he feels such impulses, irrespective of whether he expresses them in action or not. Since feeling an impulse without expressing it implies frustration, a high FM in the absence of CF and the optimal relationship to M indeed seems to indicate frustration. Because of the strict discipline and regimentation some of the wishes of the military population might be suppressed and this may be the cause of the higher FM in the normal army personnel. The 'M' response dealing with movement of inanimate objects denotes inner tensions. Among the civilian group this was highest in neurotic patients. On the other hand in the army population this was maximum in the normal group. Probably this is due to the fact that as compared to normal civilians, normal army personnel usually remain under inner tensions due to stressful occupational assignment. Schizophrenics (both army and civil) gave more pure F responses and less movement responses as compared to normal and neurotics. The low number of M responses in the schizophrenics is in agreement with the earlier studies [5] and is expected as the schizophrenic process itself improvises intellectual functioning and creativity.

Colour: In both army and civilians, the mean FC of all the clinical groups was lower than the mean FC of the normal subjects and is in agreement with Overton [9]. Normal subjects gave significantly more FC and less CF and C responses as compared to the schizophrenics. Color responses especially 'C' was highest in this group. These findings are in agreement with earlier studies and the colour responses are generally reported as an indicator of schizophrenia [5,8,10].

F+% and popular responses: These were found as important variables to discriminate the 3 groups of subjects. Normal subjects (both army and civil) obtained highest F+% and popular responses as compared to schizophrenics and neurotics stand in between. The patients with organic conditions gave low F+% and less popular responses than normals. Others confirm a similar trend [5].

Content of response: There are significant differences in the content of responses between army and civilians and also between these two groups and Klopfer's ranges. Army normals gave less human and more animal responses compared to normal civilians.

These findings are contrary to the norms reported by Prabhu [3] but in agreement with Somasundaram et al, Asthana, Dubey et al [5]. The human form was noted as varying with health, maturity and intelligence. Its absence or low quantity in an otherwise intelligent individual is likely to indicate repression of the theme [10]. It has been proposed that those who are less interested in the motivation of others tend to give low H responses. Indians in general may be disinterested in others especially in the military set up. This appears to be a more plausible explanation than interpreting low H in terms of low intelligence. Animal forms are easy to see in the inkblots. The optimum number is 20-35% [5,8,10]. An A% over 50 tends to be associated with low intellectual capacity or disturbed adjustment. The high A% in our normal subjects has to be seen in the context of socio-cultural perspective. The explanation against the low intellectual capacity of the normal personnel is further strengthened by F+% and P%, which are well within the normal range.

Army personnel gave significantly more sex responses as compared to normal civilians as well as Western norms. Sex responses were seen in all ten cards, the most frequent being II, VII and VI in order of frequency. The army environment has its inevitable frustration of sexual outlets due to separation from families and social life and this is reflected in the Rorschach test. This finding is in agreement with few studies on army personnel [5]. Frequent sex responses, unaccompanied by other signs, are induced in the subjects by their life conditions at the time of the study and are therefore to be considered as normal. In agreement with few others [5] schizophrenics gave higher At and blood responses as compared to normal subjects. Civil schizophrenics gave more sex responses compared to normal civilians while the opposite trend was observed in army personnel. Colour naming responses were given only by schizophrenics and by patients with organic disorders. The pathological nature of Cn was therefore strongly supported.

Popular responses (Table 6) for army normals and normal civilians showed marked differences among each other and also from the western norms. Normal civilians and army personnel gave only six out of the ten popular responses of Klopfer [5]. Response of two animals to the upper D in card VII, which is not a popular response as per Klopfer et al [5], was given as a popular response by normal army personnel and normal civilians. In addition, normal army personnel gave a winged creature (bat, bird or butterfly) on card IV and female genitals in card II and VII as popular responses. Two responses which Klopfer classified as populars: card III central red D as bow tie etc and head of an animal on card X do not occur in normal Indian subjects with the

frequency required to classify them as popular response. The majority of the individuals saw the popular response on card V when the card was in the upright position. It is therefore felt that the response given when the card is held in the inverted position, even though may be the same as the popular response, should not be classified as such.

Conclusions

The Rorschach responses of normal army personnel show significant differences when compared to the responses of normal Indian civilians. These differences can be explained on the basis of military training, discipline and environment. In addition, the responses of normal Indians show significant differences from the western norms given by Klopfer and so interpretation of Rorschach protocols of Indians using these norms would be fallacious and misleading. Rorschach of Indians should be interpreted using Indian norms. These differences are culturally determined and are not by themselves indicative of low intelligence or psychopathology. Patients with schizophrenia, neurosis, head injury and epilepsy show significant differences from the records of normal subjects, though there are no pathognomonic signs of various disorders. The protocols of army schizophrenics show significant deviations from those of normal army personnel and these changes revert to normal with clinical recovery.

Conflicts of Interest

None identified

References

1. Kertanguy HS, Andronikof A. Reaction to tragic loss of sociocultural environment in the Adivasi tribes: A Rorschach study. *Rorschachiana* 2004; 26: 11-25.
2. James J. Methodological issues in cross-cultural and multicultural Rorschach research. *J Personality Ass* 2004; 82: 189-208.
3. Nascimento RSGF. The impact of education and /or socioeconomic conditions on Rorschach data in a Brazilian nonpatient sample. *Rorschachiana* 2004; 26: 45-62.
4. Singh DK, Singh A, Singh AR. Relevance of Beck norms of Rorschach inkblot technique on Indian population-an exploratory pilot study on normal subjects, *SIS journal of Projective Psychology and Mental health* 2004; 12: 49-52.
5. Manickam LSS, Dubey BL. Rorschach inkblot test in India: Historical review and perspectives for future action. *SIS journal of Projective Psychology and Mental health* 2004; 12: 61-78.
6. Pershad D, Parekh S. A practical manual for the Rorschach test. Agra: HP Bhargava Book House, 2001; 101-50.
7. Bohm E. A textbook in Rorschach test diagnosis. Berne, Hans Huber. 1996. 139-299.
8. Rorschach H. Psychodiagnostic. Berne: Hans Huber, 1998; 1-71.
9. Overton CG. A relational interpretation of the Rorschach color determinants. *J Personality Ass* 2000; 75: 426-48.
10. Exner, JE. The Rorschach. A comprehensive system. Vol.1. Basic Foundations. 4th Ed. New York: John Wiley and Sons. 2002; 1-56.

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