Original Article

Rorschach analysis of personality and adjustment in airmen trainees referred for psychological assessment A comparison with normal controls

Dr Catherine Joseph Mrs CG Roopa +

ABSTRACT

Personality occupational fit is considered one of the essential requirements in any job selection procedure, however the present airmen entry selection procedures do not include personality testing. During the period 1996-99, a number of airmen trainees were discharged from service, during or after training due to psychological / psychiatric reasons. This study investigated whether the personality characteristics of airmen trainees who get referred for psychological assessment could be distinguished from trainees who do not get referred. 26 referred airmen trainees and a matched control group of 44 trainees underwent clinical interviews and were administered the Rorschach test individually following a standard method. Responses were scored in terms of location, determinants and content, and results tabulated. Differences between groups were statistically analyzed using 't' and chi square tests. Findings of the referred group indicated that the important distinguishing markers were more rigid or compulsive character formation or increased inhibition, which is psychologically maladaptive. The control group, in contrast, had more adaptive and controlled emotional responsivity, anxiety and response time. This study recommends that personality assessment be included for airmen at entry level to reduce attrition rate, ensure cost effective training and treatment and improve personality - occupational fit.

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Various psychological measurement instruments are frequently employed to maximize assessment efficiency in both clinical and occupational settings. Scientifically

* Scientist - E, Dept of Psychology, Human Factors Division, IAM, IAF. Bangalore - 560 017.

+ SA-I, Dept{of Psychology, Human Factors Division, IAM, IAF, Bangalore - 560 017.

developed psychological tests are standardized sets of procedures or tasks for obtaining samples of behavior. A subject's response to the standardized stimuli is compared with those of other people having comparable demographic characteristics usually through established test norms or test score distributions. From these comparisons a clinician can then draw inferences about the extent to which the group's psychological characteristics differ from those of a reference group, typically a psychologically "normal" one.

Two general categories of psychological tests for use are intelligence and aptitude tests and personality tests. Personality tests can be grouped into projective and objective tests. Projective tests are unstructured tests in that they rely on various ambiguous stimuli. Through the interpretations of these ambiguous materials, individuals reveal a good deal about their personal preoccupations, conflicts, motives, coping techniques and other personality characteristics. Thus projective tests are aimed at discovering the ways in which an individual's past learning and self - structure may lead him to organize and perceive ambiguous information from the environment. Prominent among projective tests in common use is the Rorschach test [1]. The test uses 10 inkblot pictures to which a subject responds in succession. In the hands of a skilled interpreter, the Rorschach has been shown to be quite useful in uncovering certain psychodynamic issues.

The value of Rorschach in differential psychiatric diagnosis has been amply supported but is less supported for interpretation of personality traits [2, 3]. In a meta-analytic comparison of reliability, stability and validity of Minnesota Multiple Personality Inventory (MMPI), Rorschach, and Wescler Adult Intelligent Scale (WAIS) one study [4] found that both the MMPI and Rorschach are valid, stable and reliable under certain circumstances. When they are used in the manner for which they were designed and validated, the psychometric properties of both are comparable and likely to be adequate for either clinical or research purposes.

Questionnaires such as the MMPI are often, considered more "objective", however, in psychological evaluation of military personnel in our laboratory, the internal validity scales of these tests were found to be elevated in over 55% of subjects, making results less reliable. This is mainly because of lack of disclosure / faking illness on the part of military personnel, especially so, in cases where medical category may affect their future occupational role and status. In questionnaires the transparency of items is so high and the subject may try to guess what aspect of his behaviour is being measured.

The ambiguity of the Rorschach stimuli makes it extremely difficult for a person to give socially desirable responses and both malingering and lack of disclosure can be detected on the test. The subject does not know what the tester is looking for and hence is not able to determine his own response [5]. In one study which investigated the ability of subjects (within four diagnostic categories) to alter Rorschach responses as a result of varied instructions [6], different diagnostic groups accounted for many more significant findings than did the varied instructions. The authors concluded that this reaffirmed the

discriminative ability of the Rorschach irrespective of instructions.

In the military, the test is presently most frequently used to investigate the psychodynamics of post traumatic stress disorder [7] and less in other clinical conditions. In India two studies have been carried out on normal army personnel [8, 9] and one on the clinical population [10]. These profiles were found to be different from the profiles described for the Indian civilian population. To our knowledge, no studies have been reported on the IAF population, however the test has been frequently utilized in clinical evaluation because of the validity problem inherent in questionnaires.

Aim of the study

During the course of four years from 1996-99, a number of Aircraftsmen / Under trainees were referred to the Dept of Psychiatry, Command Hospital Air Force (Bangalore) for various reasons. After clinical assessment, these cases were diagnosed and disposed, most of them were consequently discharged from service.

During their stay in the hospital, some of them were referred for psychological assessment mainly for confirmation of diagnosis. The aim of this study was to assess the personality characteristics of airmen trainees who get referred for psychological assessment and distinguish them from trainees who do not get referred for the same. If some clear cut markers emerge, then psychological testing at the entry level can take into account personality testing, which is presently not an attribute included in the selection process.

Personality - occupational fit is considered one of the essential requirements in any job selection procedure. In our scenario where financial constraints are said to be a pertinent issue, consideration of this variable would not only save unnecessary training (and treatment costs) but also would save time and energy on the part of the mentors and teachers, as maladjusted individuals require more care and monitoring. Moreover, merits / skills per se are not good predictors of later career performance; personality factors have presently come to occupy prime importance in occupational selection procedures.

Material and Methods

Test Administration

70 airmen trainees underwent clinical interviews and were administered the Rorschach test following a standard method [11]. They were tested individually with no testing of limits, by one of two trained psychologists in English or, if preferred in Hindi.

26 of these were referred for psychological assessment (from Dept of Psychiatry, CHAF(B)) for the purpose of psychodiagnostics and formed the referred group. They were included because, at the time of testing, they could not be clinically categorized and diagnosed by either the International Code of Disease-9 or Diagnostic and Screening Manual-IV criteria. For either ease of documentation and disposal or in some cases, because of progression of disease, they were later subsumed under different diagnostic categories. These are shown in Table 1.

Table 1 : Later Diagnostic Category of Individuals in the Referred Group

Later Diagnostic Category	Number of Individuals
Adjustment Disorder	05
Personality Disorder	02
Personality Traits	05
Anxiety / Depression	08
Pre Psychotic process	06

Table 2 : Mean (SD) Group Sample Characteristics in the Normal and Referred Groups

Characteristic	Normal group	Referred group	't' value
Age	20.93 (1.37)	21.08 (1.13)	0.46
Education (yrs)	12.92 (1.10)	13.58 (1.84)	1.87
Service (months)	15.96 (6.15)	14.92 (7.85)	0.61

Table 3 : Number of Individuals from Different Trades in the Normal and Referred Groups

Trade	Normal Group	Referred Group
Radio Fitter	16	04
Radar Fitter	09	05
Plant Maintenance Fitter	10	04
Missile Fitter	02	01
Air Defence System Operator	03	00
Radio Telephone Operator	02	01
Instrument Fitter	01	00
Engine Fitter	00	01
Weapon Fitter	00	02
Mechanical Transport Tech	00	01
Photo Tech	00	01
Mechanical Transport Fitter	00	01
Air Frame Fitter	00	01
Musician	01	01
Clerk GD	00	01
Mechanical Transport Driver	00	02

Table 4 : Number of Individuals from Different Training Institutes in the Normal and Referred Group

Training Institute	Normal Group	Referred Group
CTI	21	07
E&ITI	13	05
ETI	03	10
ATI	00	01
MTTI	00	02
AFST	00	01
MTI	00	03
WTI	00	03

Table 5 : Normative Data of Mean (SD) **Location and Determinant Variables in the Normal and 1 Referred Groups**

Rorschach variable	Normal Group	Referred Group	't' value	
R	23.55 (8.16)	21.04 (7.38)	1.29	
P	5.11 (1.51)	4.62 (1.72)	1.26	
% W	31.80 (16.61)	33.73 (18.71)	0.45	
% D	63.2 5 (13.05)	62.69 (16.44)	0.16	
% Dd	3.41 (6.79)	2.50 (4.57)	0.61	
% S	4.89 (6.74)	6.31 (8.38)	0.78	
M	2.96 (2.15)	2.12 (1.93)	1.64	A
FM	7.39 (2.62)	6.96 (3.66)	0.56	
M	1.18 (1.53)	1.12 (1.24)	0.19	
Fc	2.75 (1.82)	1.35 (1.20)	3.51	****
FC	1.14 (0.96)	1.04 (1.28)	0.36	
Fk	1.18 (1.23)	0.77 (0.95)	1.47	
% F	28.55 (13.36)	35.42 (16.75)	1.89	#
FC	1.55 (1.32)	0.65 (1.06)	2.93	***
CF	1.09 (1.14)	0.92 (1.32)	0.56	
C	0.05 (0.30)	0.04 (0.20)	0.11	
% CR	41.43 (8.42)	38.89 (9.48)	1.17	
Sum C	1.86 (1.37)	1.31 (1.50)	1.58	
L Ach Time	71.00 (34.24)	51.77 (33.09)	2.30	*
S Ach Time	19.98 (14.47)	12.39 (9.45)	2.39	*
L Ch Time	72.66 (41.40)	74.12 (71.63)	0.11	
S Ch Time	21.30 (12.99)	14.08 (9.94)	2.44	**

A p<0.10 * p<0.02 # p<0.05

** p<0.01 *** p<0.005 **** p<0.001

The other 44 trainees (from training institutes at Jalahalli) formed a matched control normal group. Group sample characteristics are shown in Table 2. Table 3 shows the number of individuals from different trades in the two groups and Table 4 shows their different institutional affiliations.

Scoring

Responses were scored in terms of location, determinants and content. Location variables were percentage W (whole), D (large detail), Dd (unusual detail) and S (space) responses; determinants were M (human movement), FM (animal movement), m (object movement), Fc (texture), FC1 (achromatic color), Fk (depth responses), F (form) and colour responses such as FC (form predominant colour), CF (Colour predominant form) and C (pure colour). A large number of content responses such as A (Animal), Ad (animal detail), H (human), Hd (human detail), Geol (geological), PI (plant), Bl(blood), Sm and Cl (cloud) were also analyzed, resulting in a total number of 45 Rorschach variables. Scoring categories were checked by both raters for reliability (r = 0.99), and results tabulated.

Statistical Analysis

Statistical analysis tested for differences between the two groups using the Student's 't' test for all variables and the chi square test for the presence / absence of seventeen criteria of adjustment [12].

Results

Table 5 shows the normative data of location and determinant variables in the normal and referred groups. There were no significant differences in the total number of mean, popular and location responses between the two groups. The referred group had a slightly higher W and S% and a lower D and Dd%.

The determinant responses were generally lower in the referred group (Table 5). Those, which showed trends and significance, are shown in Figure 1. The referred group had a significantly lower number of Fc and FC responses. There was also a lower trend of M responses. The lower number of other determinants is possibly the reason why there were a significantly increased number of F (form) responses in the referred group. Mean reaction times to the achromatic cards and the shortest reaction times to chromatic cards were all significantly shorter in the referred group, as shown in Figure 2.

Table 6 shows normative data of content variables in the normal and referred groups. All content responses excepting for anatomical ones are lower in the referred group. Significant ones were Geol and Cloth (clothing), responses. Trends were noted in Ats and At (visceral and bony anatomy), Arch (architectural), Fire and H (human) responses as shown in Figure 3.

Chi square test comparing the two groups on seventeen criteria of adjustment showed that the indices relating to human movement and color response showed trends towards significance. Two values were highly significant as shown in Table 7, relating to FC> 1 and Fk + Fc> 1 criteria.

Discussion

There were no significant differences in the total number of responses in the two groups,

Figure 1: Mean (SE) Determinants' responses in

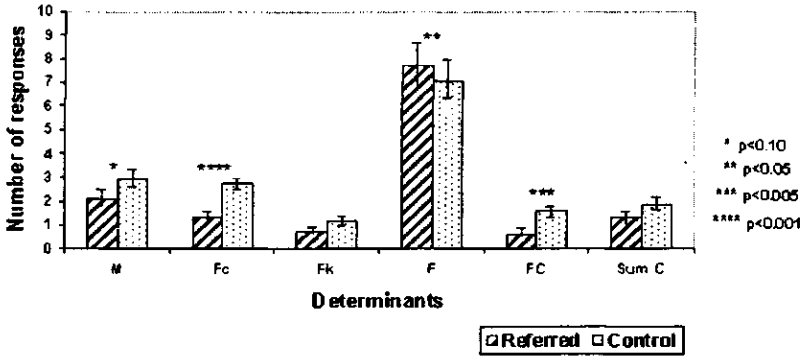
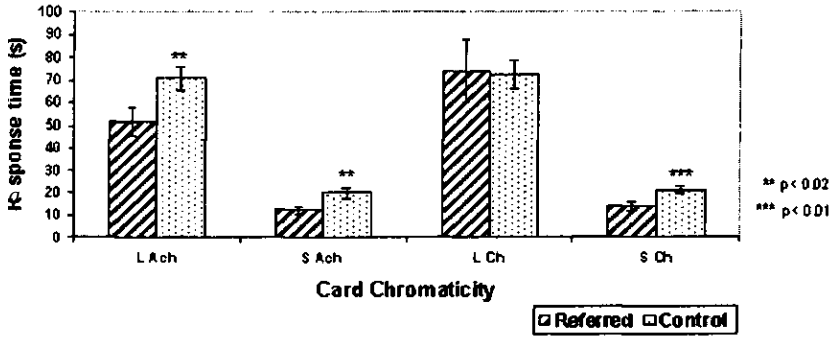


Figure 2: Mean (SE) Chromatic and Achromatic Response Time in Referred and Control Groups



Referred and Control groups

Figure 3: Mean (SE) Content responses in Referred and Control groups

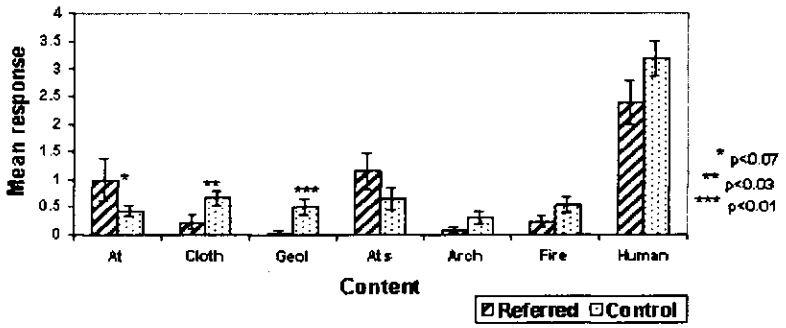


Table 6: Normative Data of Mean (SD) Content Variables in the Normal and Referred Groups

Content	Normal Group	Referred Group	't' value
A%	47.30 (2.21)	45.50 (3.87)	0.43
Ad	1.84 (0.31)	1.69 (0.41)	0.29
Anal	0.05 (0.04)	0.03 (0.03)	0.11
Arch	0.30 (0.11)	0.08 (0.05)	1.46 [A]
At	0.43 (0.10)	1.00 (0.37)	1.80 [A]
Ats	0.64 (0.20).	1.15 (0.32)	1.46 [A]
Bl	0.39 (0.09)	0.35 (0.16)	0.24
a	0.45 (0.11)	0.46 (0.17)	0.04
Cloth	0.66 (0.13)	0.23 (0.12)	2.19 *
Fire	0.52 (0.14)	0.23 (0.10)	1.44 [A] •
Geo(Geography)	0.43 (0.10)	0.27 (0.10)	1.03
Geol	0.50 (0.14)	0.03 (0.03)	2.50 **
H	3.18 (0.31)	2.39 (0.39)	1.58 [A]
Hd	1.20 (0.30)	0.88 (0.25)	0.73
Ldsc(Landscape)	0.36 (0.09)	0.23 (0.13)	0.83
Misc	1.80 (0.31)	1.58 (0.37)	0.44
Nat	0.14 (0.06)	0.23 (0.13)	0.75
Obj	2.15 (0.30)	1.88 (0.43)	0.53
Pl(Plant)	1.18 (0.22)	1.15 (0.32)	0.07
Sex	0.02 (0.02)	0.03 (0.03)	0.38
Sm	0.27 (0.08)	0.15 (0.09)	0.93
Xray	0.00 (0.00)	0.08 (0.07)	1.31

[A] p<0.10 ** p < 0.01 * p < 0.05

Table 7 : Chi square Comparison Between the Two Groups on six of Davidson's Criteria of Adjustment

Criteria	Chi square value
FC > 1	6.89"
Fk + Fc > 1	7.31"
FC > CF	2.99
40 - 60 R%	2.63
C = 0	2.08
M > 2	1.56

** p < 0.01

though the referred group had a lower number of responses (R). The R reflects the quantitative productivity of the subject. This depends on the flexibility of the perceptual processes, and the wealth and pliancy of the associative processes.

These average R values are higher than those previously reported in army personnel. The mean values found in both these recruit groups were in the lower region of the normal range in civilian Indian subjects, reported by others **[8, 9].** The possible reasons for this difference may be because of the different characteristics of this population studied which differed in that, they were from the Air Force, had a higher mean education level and were a younger group with much lesser number of years in service. This last feature may be the reason why this group may resemble the civilian population more closely.

The number of popular responses in this study group showed no differences either within the two groups or between the other army and civilian studies. The proportion of location categories did not show any differences between the two groups. The perceptual organizing processes and the associative processes have a general trend in structuring a situation and it is according to this that the emphasis divides between W and D. These percentage averages were similar to those reported previously.

In the determinant categories the referred group had a lower number of all determinants, excepting for the F%. Though the F% was within the normal ranges in both groups, it was found to be significantly higher in the referred group. The F response refers to processes of formal reasoning, it stands for the autonomy of the perceptual and thought processes from encroachments by unconscious factors, and for the delay of gratification of instinctual needs. The lower number of other determinants possibly accounts for this increase in F%. It suggests a more rigid or compulsive character formation or increased inhibition. The latter could be the cause since all average values of chromatic determinants are lower in the referred group. F% values of the referred group are lower, and the control group's values within the ranges reported from previous studies **[8,9].**

The FC response was also significantly lower in the referred group. Lower CF, C R% of colour responses and sum C values were also found in this group, though differences were not significant. FC is regarded as an indicator of the capacity for controlled affective rapport and emotional adaptation. The associative process is guided by both factual assessment of reality and appropriate expression of affect **[11].** Research lends unequivocal support to the significance of form dominance as regards colour : FC was seen to be associated with control over self - directed aggression **[3].** Other facets of emotional responsivity pertaining to adjustment also showed trends towards significance (Table **7).** FC and CF values of both groups are higher but pure C response average is lower than previous reports **[8,9].**

Controlled affectional anxiety, indicated by Fc, is also lower in the referred group, and both groups have higher values than previous reports **[8, 9].** The referred group also had significantly shorter reaction times (than the control group) to

achromatic and chromatic cards. This is possibly related to a controlled and optimal inhibition and response to affectional anxiety required for "better functioning" in the training institute environment.

The content of the subject's responses refers to the wealth or stereotypy of his everyday thinking [11]. It can reveal the significant beliefs, feelings or conflicts, which colour a person's perception of the world [3]. The control group had increased number of content responses in all categories excepting for anatomical ones. Significant ones were Geol, and Cloth responses, indicating more concern over social role and more varied interests in this group. Both groups had higher values on H, Hd, Ad, PI, Obj (object) and Bl and lower values on A, Sex and N (nature) contents when compared to a previous report on army personnel [9]. The above differences seen between groups of the present study and previous ones could be due to differences in group demographic characteristics such as army / airforce service, mean education level, age and years in service.

The above differences between the referred and control groups are unlikely to be because of the inherent psychopathology in the referred group. Firstly, the individuals in this group had been referred because a clinical diagnosis was unclear. Secondly, the number and nature of Rorschach psychodiagnostic indices would have been more encompassing in psychopathological conditions. One study using Rorschach indices, found psychological precursors to various disorders, including mental disorders in seemingly healthy individuals [13], suggesting a difference between psychopathological and precursor indices.

In conclusion, findings of this study, which has examined recruits who had been referred for psychological assessment and those who had never been referred for psychiatric evaluation, suggest some personality differences. A more rigid or compulsive character formation or increased inhibition which is psychologically maladaptive as opposed to more adaptive factors of control reflected in emotional responsivity, anxiety and response time, appear to be the important distinguishing markers between the referred and control groups.

Another study [14] reported that background characteristics coupled with certain personality traits are the causes for trainees seeking discharge. It found that "there is a need for introducing elaborate biographical information inventory and a personality test at the recruitment stage to reduce general attrition rate during training". This study also recommends that personality assessment be included at airmen entry selection level to reduce attrition rate, ensure cost - effective training and treatment, and improve personality - occupational fit.

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