

THE USEFULNESS OF REES-EYSENCK BODY INDEX AS A MEASURE OF BODY BUILD

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Introduction

The relation between body build and temperament has been acknowledged from early days of medicine. But the scientific study of the relation between physical constitution, temperament, and mental illness was first initiated by Kretschmer (1936) and followed by Sheldon et al. (1940), Rees and Eysenck (1945), Tanner (1951) and Parnell (1958). Moore and Hsu (1946) reported that nonparanoid schizophrenics were different from manic-depressive psychotics and paranoid schizophrenics in being more leptomorphic. Kallman (1953) suggested that schizophrenic patients with leptomorphic body build had a poor prognosis. In our Department we had reported that nonparanoid schizophrenic patients were more leptomorphic than paranoid schizophrenic patients, and the neurotic patients with dysthymic symptoms were more leptomorphic than those with hysterical symptoms (Vergheese 1971). In a group of Australian Patients, Vergheese et al. (1978) reported that nonparanoid schizophrenic patients were more leptomorphic than paranoid patients.

There are several indices made use of in the measurement of body build by different workers such as Stramgren index, Bornhardt index, Brugsch's index, Robrer index, Martin index, Rees-Eysenck Body index etc. (Rees 1960). Of all these indices, Rees-Eysenck body index (REBI) is the simplest and the most widely used. Rees and Eysenck (1945) in a study of 18 variables

in a group of 200 soldiers found that height and chest diameter helped most to discriminate and measure physical body types. Using factorial analysis studies, they combined the measurement of height and chest diameter in a ratio and constructed the REBI as follows:

$$\text{REBI} = \frac{\text{Height} \times 100}{\text{Chest diameter} \times 6}$$

They have reported that this index is normally distributed around a mean of 100. The above calculation is for men and the calculation of the index in women is more complicated and hence the somatotyping studies are more commonly done among men.

The height is read off from a scale when the subject stands straight barefooted. The chest diameter is taken by means of a pelvimeter at the third intercostal space, midway between inspiration and expiration. The value of REBI can be read off from a Normogram (Hamilton 1950). In our Department we have used this index to assess body build in several studies.

This paper describes the usefulness of REBI in the assessment of body build by determining its reliability and validity.

Test-retest reliability

Two subjects were rated on REBI by one investigator on 3 occasions. The values are given in the table. The percentage agreement was 98.7, showing a very high test-retest reliability for REBI.

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Table		
	REBI	% agreement
Test-retest reliability	Subject 1	116.0
		113.1
		115.4
	Subject 2	109.9
		108.0
		110.9
Interrater reliability	Subject 1. Rater 1.	114.9
	Rater 2.	110.3
	Rater 3.	112.4
	Subject 2. Rater 1.	108.0
	Rater 2.	109.9
	Rater 3.	114.4

Interrater reliability

Two subjects were rated on REBI by 3 raters at the same time. The percentage assessments were 98.0 and 97.0, showing a very high interrater reliability.

Validity

Two senior psychiatrists clinically examined a group of subjects and independently rated 10 as definitely pyknic (endomorph) and 5 as definitely aesthenic (ectomorph). REBI was calculated for these 2 groups of subjects. The mean REBI for the group clinically rated as pyknic was 99.6 ± 7.7 and that for the other group clinically rated as aesthenic was 121.8 ± 3.6 . The difference was statistically significant ($P < 0.001$). Thus REBI clearly demarcates these two groups of subjects, thus confirming the validity of REBI to assess body build.

Comments and summary

Somatotyping is an interesting and use-

ful area in psychiatry. There is a consistent observation by various workers that patients with affective illness (both bipolar and unipolar) and paranoid schizophrenic patients are more pyknic in body build. The REBI is a useful index in assessing body build. It is not difficult to assess. The test-retest reliability, the interrater reliability and the validity of REBI are quite high.

References

- KRETSCHMER, E. (1936), *Physique and character*. London. Kegan Paul, Trench, Trubner & Co.
- KALLMAN, F. (1953), *Heredity in health and mental disorders*. New York. Norton.
- MOORE, T. V. & Hsu, B. H. (1946), Factorial analysis of measurements in psychotic patients, *Human Biology*, 18, 133.
- PARNELL, R. W. (1958), *Behaviour and Physique*. London. Edward Arnold.
- REES, L. & EYSENCK, H. J. (1945), A factorial study of some morphological and psychological aspects of human constitution. *Journal of Mental Science*, 91, 6.
- REES, L. (1960), Constitutional factors and abnormal behaviour in *Handbook of Abnormal Psychology*, Ed. H. J. Eysenck. London. Pitman Medical.
- SHELDON, W. H., STEVENS, S. S. & TUCKER, W. B. (1940), *The varieties of human physique*. New York. Harper & Bros.
- TANNER, J. M. (1951), Current advances in the study of physique, *Lancet*, 260, 574.
- VERGHESE, A. (1971), Bodybuild in mental diseases. *Indian Journal Psychiatry*, 13, 229.
- VERGHESE, A., PAMELA, L. & CHIU, E. (1978), Relationship between bodybuild and mental illness. *British Journal of Psychiatry*, 132, 12.