The main objective of this investigation was to study the effects of d-amphetamine (primarily a central stimulant) and phenobarbitone (primarily a central depressant) on the visual and kinesthetic figural after-effect scores of groups of people varying on the neuroticism and extraversion dimensions of personality.

The hypotheses were:

1. Extraverts will have larger figural after-effects (both visual and kinesthetic) than introverts; in relation to neuroticism no specific hypothesis is proposed and the objective is purely exploratory in nature.

2. The interaction of personality and drug treatments as envisaged by the Eysenckian theory and supported by a recent study (Gupta & Kaur, 1978) will be significant, suggesting thereby that the size of both visual and kinesthetic figural after-effect under the influence of
d-amphetamine, primarily a central stimulant, will decrease for the extraverted group of subjects but will either increase or remain unchanged for the introverted group; for phenobarbitone which is primarily a central depressant the reverse is expected - an increase for the introverted group of subjects and a decrease or no change for the extraverted group. For a possible interaction of neuroticism with drug treatments no specific hypothesis is proposed and the objective is purely exploratory in nature. Similarly no specific hypothesis is proposed for a possible three-way interaction among extraversion, neuroticism and drug treatments.

Thirty-two male right handed students between 20-30 years acted as subjects. They were selected out of a sample of 600 post-graduate students of Punjab University, Chandigarh, on the basis of their neuroticism and extraversion scores according to a procedure adopted for 'zone analysis' (Eysenck, 1967a). The subjects were classified into four groups, each consisting of 8 subjects who were repeatedly tested under the influence of each of the three treatments (d-amphetamine, 10 mg; phenobarbitone, 100 mg; placebo) administered randomly at an interval of 8-10 days. Each subject provided data for both visual and kinesthetic figural after-effects.
Thus, the drug treatments was the repeated measure variable while the personality was a non-repeated one. The double blind procedure was used for drug administration. The equipment for both visual and kinesthetic figural after-effects was devised by late Professor S.D. Singh (Professor Singh just prior to his death in June, 1979 was working as Head of the Department of Psychology, Meerut University, Meerut).

The design for the measurement of figural after-effects involved the establishment of two points of subjective equality; a preinduction PSE which served as a control measure, and a postinduction PSE after an inspection period of 60 seconds (each PSE was based upon four judgements). The difference between the two PSEs (preinduction PSE minus postinduction PSE) was the measure of figural after-effect. This measure gives a very high positive correlation (Gupta & Jeet, 1979) with two other measures, namely the inflexion ratio (Gupta, 1973, 1976; Gupta & Kaur, 1978) and the residual change score (Weintraub & Herzog, 1973).

The data were analysed by two-and three way analysis of variance with repeated measures on one of the variables namely drug treatments, and the Newman Keuls test (Keppel, 1973).
The major findings discussed in psychopharmacological perspective and in regard to the Eysenckian theory, are as under:

Visual Figural After-Effects:

i) Extraverts have larger visual FAE than their counterparts, the introverts.

ii) Neuroticism is unrelated to visual FAE i.e., there are no differences between the mean scores of labile (N+) and stable (N-) groups of subjects.

iii) Groups of subjects varying in terms of drive (according to Eysenckian theory; Eysenck, 1967b) do not significantly differ with one another in visual FAE.

iv) In general d-amphetamine and phenobarbitone, as compared to placebo, increase the size of visual FAE although the increase is more pronounced and statistically significant only for the latter drug.

v) Phenobarbitone significantly increases the FAE scores of all personality groups except those with moderate levels of initial drive (in terms of Eysenckian theory) i.e., N+E+ and N-E-. Similarly d-amphetamine also tends to increase the FAE scores of all personality groups but such increases are nonsignificant.
vi) The interactions of personality and drug treatments do not occur in visual FAE.

Kinesthetic Figural After-Effect:

vii) Personality is not a significant variable for kinesthetic FAE.

viii) Phenobarbitone in an overall way increases the extent of kinesthetic FAE but the subsequent analysis shows that the increase is statistically significant for the labile (N+), and extraverted (E+) groups of subjects only.

ix) The interactions of personality and drug treatments do not occur in kinesthetic FAE.
REFERENCES

Eysenck, H.J. The Biological Basis of Personality. Springfield, Ill. : Thomas, 1967. (a)

Eysenck, H.J. Intelligence assessment : A theoretical and experimental approach. British Journal of Educational Psychology, 1967, 37, 81-98. (b)


