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By investigating the effects of various pharmacological agents and the mechanisms by which they produce or counteract psychopathological phenomena, psychopharmacological research may provide a method to gather information not only regarding behavioral, psychophysiological, neurophysiological, neurochemical correlates of clinical symptoms but also would be instrumental in directing attention to the functional pathology involved. Though it is known since long that pharmacological agents exercise certain effects on behavior, intensive and systematic efforts to investigate the relations between drugs and behavior have only recently begun. With the advent of more precise methods for measuring behavior, there has developed an increasing experimental interest in the relations between behavior and other biopsychological processes. Behavioral approach in the field of psychiatry may help us to begin to specify how and why different types of symptoms manifest and how different types of treatments work.

The actions of psychopharmacological substances on arousal have been regarded as one of the most important areas of research, and hence, this was thought to be a suitable area for the present investigation too.

Various indices selected as measures of arousal
were - G.S.R., Satiation (perceptual, verbal, and kinesthetic), Habituation (finger blood volume change in response to auditory stimuli, as measured through finger plethysmography), reaction time, time perception (time estimation and time reproduction), two-flash threshold, G.S.R. conditioning (adaptation, conditioning and extinction) and Sedation threshold.

Thirty acute anxiety, thirty acute schizophrenia and ten endogenous depression patients were taken as subjects and the drugs used were Diasepam, Chlorpromazine, and Imipramine respectively for the three groups mentioned above.

The pre-treatment condition of each patient and each group of patients was taken as a base line for the evaluation of the findings obtained after three weeks of treatment using the same psychophysiological measures mentioned above.

The findings obtained using different indices of arousal may be summarised as follows:

Basal arousal as measured through GSR, was found to be relatively decreased in case of anxiety and depression following treatment, whereas, an increased level of arousal was noticed with regard to schizophrenics.
There was a drop in the mean scores of perceptual satiation (as was measured through the Spiral After-Effect test) in all the three groups of patients during post-treatment investigation, and statistical treatment of the data did not reveal any significant intergroup variation in perceptual satiation scores when groups were compared taking two at a time. The effects of treatment seemed to be equal on all the three groups of patients so far as their perceptual satiation scores were concerned, irrespective of both the clockwise and anti-clockwise directions of the rotation of the Archimedes Spiral.

So far as Verbal Satiation was concerned it was evident that both the words 'family' and 'child' were most significant in case of anxiety, whereas only the former was most important with regard to schizophrenics. All the five concepts (viz., Me, Family, Child, Rich, and Truth) except for Rich were significant for depressives.

So far as habituation to external stimuli (as was measured through finger plethysmography) was concerned, the number of trials required for anxiety patients to get habituated to it became relatively less after treatment, whereas, the reverse was noticed with regard to schizophrenics and depressives.
Findings obtained on the basis of reaction time experiment (with and without white noise, both simple and choice using different durations of fore-periods) showed relatively short reaction time in all the various phases of this experiment for all the three groups of patients after treatment.

Time perception (as was measured in two phases of it — time estimation and time reproduction) to auditory stimulus showed comparatively an increase in the mean scores for anxiety and schizophrenic patients in both estimation and reproduction phases of it, after treatment, whereas, in case of depressives, a decrease in the former and an increase in the latter were noted following treatment. However, intergroup variation in time reproduction capacity of the three groups was not statistically significant after treatment.

Two-flash threshold was found to be relatively decreased with respect to anxiety patients, whereas, a reverse condition was noticed with regard to both schizophrenics and depressives.

Kinesthetic figural after-effects were found to be relatively decreased in case of anxiety and depression patients, whereas, an increase was evident with regard to schizophrenics, following treatment.
The process of adaptation and conditioning as well as the rate of extinction (as was measured during GSR conditioning) revealed the following:

In all the three phases of this experiment, there was relatively low scores for anxiety patients after treatment (i.e., their adaptation was quicker; apprehension leading to more changes on P.G.R. during conditioning and after presentation of CS was less; and rate of extinction took relatively less trials after treatment) but the reverse findings were noted with regard to both the schizophrenics and depressives (i.e., their process of adaptation was slow, apprehension leading to changes on PGR during conditioning, and after presentation of CS was more; and rate of extinction took more number of trials following treatment).

Sedation threshold was found to be relatively decreased for anxiety patients following treatment, whereas, the reverse was evident with regard to both the groups of psychotic patients, viz., schizophrenia and endogenous depression.

Thus, all the three drugs found to be effective enough to influence the mechanisms of arousal as was revealed through the findings obtained using various measures mentioned above.
Results were explained on the basis of the theoretical explanations propounded by different authors regarding the sites of action of the drugs used (in this investigation), as well as the psychophysiological mechanisms underlying arousal as were measured through various indices of it.

Possible explanations for intra and inter-group variations in performance were given and suggestions for further research in this field have been recommended.