CHAPTER VIII.

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The purpose of the present investigation was to assess behavioral changes mainly in terms of arousal, habituation and conditioning following drug administration, viz., Diazepam, Chlorpromazine and Imipramine to three different diagnostic groups of psychiatric patients, namely, anxiety, schizophrenia and endogenous depression respectively. The pre-treatment condition of behavior of each patient and each group of patients was taken as the basis for the evaluation of the actions of drugs mentioned above.

Following Hebb (1955), Lindsley (1951, 1957), Malmo (1959), Berlyne (1960), Grey (1964), Ban (1969) and Claridge (1970) it was assumed that brain stem reticular formation especially, its ascending part, would be one of the most exclusively explored areas for this type of research. Because considerable evidences have made it obvious that drugs which exert an arousing or tranquilizing effects on the organism are likely to have reticular site of action (e.g., Sheer - 1961; Killam - 1962; Grey - 1964; Ban - 1969; Claridge - 1967, 1970).

To assess the influence of the drugs on the functions of the reticular formation and other possible sites of actions, various psychophysiological measures of arousal
were selected. Following Wallach (1949); Klein and Kretch (1952); Sheer (1961); Eysenck (1963); Grey (1964); Ban (1969); Claridge (1967, 1970) and others, it was assumed that such measures would be appropriate to assess the influence of pharmacological agents on arousal from the behavioral point of view.

The findings obtained using different indices of arousal may be summarized 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, inter-group 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 score 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.

The results obtained in the present investigation were explained keeping in view the theoretical explanations provided by different authors regarding the sites of action of the drugs used as well as the psychophysiological mechanisms underlying the concept of arousal as was measured through various indices of it. From the findings it was evident that the three drugs used in the present investigation, viz., Diazepam, Chlorpromazine and Imipramine for the three groups of patients, anxiety, schizophrenia and endogenous depression respectively, have shown their influence on the level of arousal. The influence of the drugs also helped the patients to adjust in the environment in a better way, in comparison with their pre-treatment condition of it.

On the basis of the findings mentioned above, it may be concluded that the existing level of arousal in each
patient and each group of patients seems to play an important role to bring behavioral changes in psychiatric patients, be it in pre-treatment or post-treatment phase of the patients, as was revealed through various psychophysiological measures of arousal used in both the pre- and post-treatment phases of the present investigation.

Though three week period of time with the doses of drugs used in the present investigation seems to be effective in bringing change in the level of arousal, which in-turn shows behavioral changes in the patients, further investigation with different doses of drugs and at varying periods of treatment may help to probe deeper into this matter and thus to generalize the findings. However, explanations for the findings obtained in the present investigation, individually for the three groups of patients as well as the probable causes for intergroup variations (in the findings) have been provided in due places while explaining each indice of arousal separately.

While discussing the possible causes for individual variations in drug effects, Claridge (1970) has pointed out that apart from random fluctuations that occur within the same person, "differences between people occur because of a variety of relatively permanent individual characteristics, many of which are purely physical." Thus, general
physical health, body weight, body type, age, sex, as well as drug tolerance of each individual and the dose of the drugs etc., may be contributory factors for variation in the effects of drugs. In addition to the physical factors mentioned above, Claridge (1970) has also emphasized that individual variations observed among people taking drug may be because of intrinsic differences in their psychological or to be more precise and particular, due to their, "psychophysiological make up."

Mention may be made here of the difficulties we usually come across in clinical field regarding the diagnostic categorization of the patients. The present day use for such categorization seems to be limited and subject to criticism (details discussed in Chapter III of this thesis). Thus, lack of any sound basis for such categorization of the patients from the diagnostic point of view may be one of the reasons for some of the paradoxical findings usually found in this type of research. Hence, attempt should be made to find out a sound and more suitable basis so as to group the patients under certain diagnostic category more scientifically either in terms of disturbed psychological functions as revealed through behavior, or in otherwords, the manifestation of behavior and its underlying factors.

In the present investigation however, it was
not possible to control all the factors mentioned above, hence, further investigation on different diagnostic groups (keeping in view the idea to find out a more scientific basis of such categorization) of patients varying in age, sex, body type, body weight, etc., along with varying doses of drugs with investigations at different durations of medication may be recommended to facilitate further work in this field of research.