"Instead of studying a thousand rats for one hour each, or a hundred rats for ten hours each, the investigator is likely to study one rat for a thousand hours."

B.F. Skinner, 1966

CHAPTER III

METHOD & PROCEDURE
The study is conducted in two parts. Part 'A' deals with comprehensive analysis of the causes of enuretic behaviour and Part 'B' deals with the modification of enuretic behaviour among children. The method and procedure followed are as follows.

**PART 'A'**

**AIM**

To analyse the causes of enuretic behaviour among children.

**DETAILED AIMS**:

1. To study the intelligence of enuretic children in comparison to their non-enuretic counterparts with the help of coloured Progressive Matrices developed by Ravens (1938).

2. To study the socio-economic status of enuretic children in comparison to their non-enuretic counterparts.
3. To study the nutritional state of enuretic children.

4. To study the personality characteristics of enuretic children in comparison to their non-enuretic counterparts with the help of Children's Apperception Test (CAT) developed by Bellak and Bellak (1959).

5. To investigate the family factors/stresses like marital disharmony, parental stress, unwanted child, parental illness, sibling arrival, toilet training practices, parent's behaviour towards the child in general and enuretic problem in particular, child care and child rearing, enforcement of discipline in the family, and family history of enuresis.

DEFINITION OF TERMS USED

ENURESIS

According to DSM-IV, 'enuresis' is the repeated voiding of urine into clothes or bed whether the voiding is involuntary or intentional. The behaviour must occur
twice-weekly for at least three months or must cause clinically significant distress or impairment socially or academically. The child's chronological or developmental age must be at least 5 years.

**INTELLIGENCE**

'Intelligence is the aggregate or global capacity to an individual to act purposefully, to think rationally and to deal effectively with his environment'. (Wechsler, 1958).

**SOCIO-ECONOMIC STATUS**

Socio-status refers to the role, social power, prestige, and behaviour of the subject's family in their society and the economic status refers to the financial condition of the family.

**NUTRITIONAL STATUS**

Nutritional status is to be defined in terms of various anthropometric parameters and clinical examination. The anthropometry includes physical
parameters, such as age, height, and weight. Indian Council of Medical Research (ICMR) has provided norms for evaluating nutritional status in Indian context.

PERSONALITY

'Personality is the dynamic organization within the individual of those psychophysical systems that determine his unique adjustment to the environment'. (Allport, 1937).

FAMILY FACTORS

These factors refer to the general socio-psychological environment in the family like behaviour of parents and other members in the family towards the child, marital disharmony/ marital discord, discipline, child care, love and affection, family history of enuresis i.e. whether other members of the family like sibling or parents themselves have/ had this problem.

TOOLS & TECHNIQUES

COLOURED PROGRESSIVE MATRICES (CPM)
This test is used to test the intelligence of children included in the sample of the study. It is designed for use with young children and old people, anthropological studies, and for clinical work. It can be used satisfactorily with people who, for any reason, can not understand or speak English language, with people suffering from physical disabilities, aphasias, cerebral palsy of deafness as well as with people who are intellectually subnormal or have deteriorated. CPM is designed by Ravens in 1938. In 1956 edition, all 36 problems constituting sets A, Ab, B were reviewed, and where necessary, rearranged to provide a more uniform increase in the order of difficulty. Every set has 12 items and these are coloured. It is a power test because the difficulty level of this test gradually increases. CPM is designed to assess, as accurately as possible, a person's present clarity of observation and level of intellectual development. The test can be administered to children upto 12 years of age. This test is designed into 2 forms, board and book form. Book form of the test is used in the present study.
Reliability of the test is well established. A split half reliability estimate of 0.90 was reported. Test retest reliability coefficient was found 0.87, 0.83 and 0.81 for samples of 5, 7, and 8 year old pupils respectively.

Validity of the test is also well established. This test is well suited for use with young children, with the retarded and elderly populations. Moreover, its non-verbal nature has made it attractive to Clinicians looking...... Cerebral damage and dementia, and to psychologists wishing to compare ability across cultures where language based tests are appropriate. From its conception, it has been acknowledged that CPM has a high ‘g’ loading, with the visuo-spatial ‘K’ factor involved to some degree. The test is not one of ‘general intelligence’, but it does measure person’s intellectual output in a rather pure factorial sense.

SOCIO-ECONOMIC STATUS (SES) QUESTIONNAIRE

It is a self-made questionnaire used to study the socio-economic status of the subjects. It covers 4
variables - educational level, occupation, income, and cultural living.

ASSESSMENT OF NUTRITIONAL STATUS

Assessment of nutritional status was done through anthropometric measures and clinical examination of the subject by a pediatrician. This assessment was based on weight of the child in relation to his/her age. For this purpose norms of ICMR were used by the pediatrician.

CHILDREN'S APPERCEPTION TEST (CAT)

It is devised by Bellak in 1959 for use as personality test for children of ages between 3 to 10. It is a projective method or as we prefer to call it an apperception method, and a method of investigating personality by studying the dynamic meaningfulness of the individual differences in perception of standard stimuli. This test consists of 10 pictures of animals in various situations. The relative ambiguity of these stimuli permits children to interpret them in various ways when they are asked to tell stories about these pictures. The individual differences in such
apperceptive distortions serve the psychologists a basis for inferences concerning the motivations, dynamics, and personality structure of the narrator.

The CAT was designed to facilitate understanding of a child's relationship to his most important figures and drives. Through this test the child’s fantasies about aggression; about acceptance by the adult world and his fear of being lonely at night with a possible relation to masturbation, toilet behaviour and the parent’s response to it can be elicited. Through this technique we can learn the child's structure and dynamic method of reacting to and handling his/her problems of growth.

Reliability of CAT cannot be established as it is a personality test. Personality is dynamic and hence the consistency of results cannot be expected when the test is repeated on the individual.

Validity of this test is based on three factors: a study of the individual differences and forms of apperceptive distortion, by finding repetitive pattern throughout the record; intra test data; if there is a story we make the inference that the subject has a strong oral need
apparently related to a feeling of deprivation.

One may compare the fantasy behaviour, with manifest behaviour and make inferences on the basis of intra-individual data.

A normative-statistical approach to the validity of inference on the basis of inter-individual differences in apperception.

**INTERVIEW SCHEDULE FOR ENURETIC CHILDREN**

This self-constructed questionnaire for interview of enuretic children covers the following aspects: satisfaction and dissatisfaction with parents, teachers, schoolmates, studies etc., fears, self confidence, child's feeling about his/her enuretic problem, bed-wetting due to sound sleep, awareness in the child about enuretic behaviour, and willingness to give up enuretic behaviour. The questionnaire serves as a guideline for interview.
INTERVIEW SCHEDULE FOR PARENTS OF ENURETIC CHILDREN

This self-constructed questionnaire for the interview of parents of enuretic children covers the following aspects: marital disharmony, parental stress, unwanted child, parental illness, sibling arrival, toilet training-practices, parents' attitude and reaction towards child's enuretic behaviour in particular and child in general, child care and child rearing, enforcement of discipline in the family, and family history of enuresis.

SAMPLE

The sample comprised two groups of children. Group I consists of 30 nocturnal enuretic children in the age range of 5 to 10 years. These enuretic children are randomly taken from the pediatric department of S.N. Medical College of Agra and other private Clinics of Pediatricians who were willing to cooperate in the present study. Initially 37 enuretic children were selected. 7 were drop-outs. Group II consists of 30 non-enuretic children.
and is a matched group in terms of age, sex, and educational level, with Group II. The inclusion-exclusion criteria given in DSM-IV are followed for enuretic children to be included in the sample (Group I).

INCLUSION CRITERIA

1. Repeated voiding of urine into bed or clothes (whether the voiding is involuntary or intentional.

2. The behaviour is clinically significant as manifested by either a frequency of twice a week for at least three consecutive months or the presence of clinically significant distress or impairment in social, academic (occupational) or other important areas of functioning.

3. Chronological or developmental age is at least 5 years (or equivalent developmental levels).

EXCLUSION CRITERIA

1. The behaviour is not due to the direct physiological effect of a substance (e.g. diuretic) or general
medical condition (e.g. Diabetes, Spina bifida, a seizure disorder).

2. Mentally retarded are not included.

DESIGN

Matched groups design is used. Group II is a matched group with Group I in terms of age, sex, and educational level.

PROCEDURE

After careful selection of the sample, CPM and CAT were administered on the children of both the groups according to the instructions given in respective test manuals. SES questionnaire was given to the parents of each child. Nutritional deficiency test was conducted by a pediatrician which included anthropometric measures and clinical examination. Every child's both parents were interviewed individually with the help of interview schedule planned for this purpose. Each enuretic child was also interviewed following the schedule prepared for this purpose.
Detailed procedure of administration of these tests and interviews is as follows:

ADMINISTRATION OF CPM

CPM was administered individually on each child. During preliminary conversation, particulars of the child were noted on the record form. Then the booklet was opened before the child for the first item, A 1 and the following instruction were given-

“Look at this” (pointing to the upper figure). “You see, it is a pattern with a piece cut out of it. Each of these pieces below (pointing to each in turn) is the right shape to fit in the space, but only one of them is the right pattern. No.1 is the right shape, but it is not the right pattern, No.2 is not the pattern at all. No.3 is quite wrong. No.6 is nearly right but it is wrong here (pointing to the white piece). Only one is right (pointing to the piece which is correct)".

If the child did not point to the right piece, the investigator continued the explanation until the nature of the problem to be solved was clearly grasped.
The investigator then turned to problem A2, and said- "Now point to the piece which comes out of this pattern."

If the child failed to do so then the investigator redemonstrated problem A1 and requested a repeat of A2.

If the problem was solved correctly, the investigator then turned to A3 and proceeded as before.

In the item A4, before the child had time to point to one of the pieces, the investigator said,

"Look carefully at the patterns" (move your finger across it).

"Only one of these pieces is right. Be careful, Look at each of them first" (pointing to each of six pieces)

"Now point to the right one to go in here" (point to the space).

When the child had pointed to one of the pieces whether it was right or not, the investigator said, "is that the right one to go in here?" (pointing to the pattern and the space to be filled). If the child answered in the affirmative, then the investigator accepted the choice with approval, whether right or wrong.
If the subject wanted to change his mind, the investigator again said- "well, point to the one that is correct." Whether the child then chose the correct option or the wrong one, the investigator again said- "Is that the correct one?" If the child was satisfied, then the choice was accepted. If the doubt still persisted the investigator said- "Which is the correct one?" the investigator then accepted the one pointed out as the child's final decision.

Problem A5 was then demonstrated in the same way as A4. At any stage between A1 and A5, problem A1 was used to illustrate what the child had to do, with a request to try again.

When the problem A1 to A5 had been solved, the investigator turned to A6, but only said- "Look at the pattern carefully. Now which of these pieces (pointing to each in turn) goes in here?" (pointing to the space). "Be careful, only one is correct, which one is it? Be sure you find the correct one before you point to it."

As each of the 12 problems of A series was presented, the same instructions were given as long as it
served a useful purpose. Child's responses were noted in the appropriate space on the record form.

In demonstrating the first problem of set Ab, three figures on the pattern were pointed again, and the space to be filled, the investigator said again- "you see, now it goes, that, that —what will this one be? Point to the right one to go here. Be careful, look at each in turn, only one is correct, which one is it?

In problems 1 to 5 of set Ab, after the child had pointed to the one of the pieces, whether it was correct or wrong, the investigator asked- "is that the correct one to complete this pattern?

Pointing to the pattern and the space to be filled. As before, if the child says yes, the choice was accepted with approval. If the child wanted to change, the investigator proceeded as in set A1, and accepted the one finally adhered to as the correct.

After the 5th problem the child was instructed- "look carefully at the pattern." (pointing to each of the figure in turn and the space to be filled). Be careful, only one of these pieces completes the pattern properly (pointing to
each in turn) which one it is?" The same guidance was given with each problem as long as it was useful. After the completion of the test the child was thanked and allowed to go.

ADMINISTRATION OF SES QUESTIONNAIRE

To study the socio-economic status of children included in the sample of the study, the self constructed SES questionnaire (Appendix-1) was given to the parents of each child. They were assured that the data furnished by them will be used strictly for research purpose only. The completed questionnaires were collected from them.

ASSESSMENT OF NUTRITIONAL STATUS

Nutritional status of each enuretic child was taken by pediatrician. For this purpose anthropometric measures-age, height and weight were measured and norms of ICMR were used by pediatrician.
ADMINISTRATION OF CAT

CAT was also administered individually on each child. After establishing good rapport with the child, following instruction were given- "we are going to engage in a game in which you have to tell a story about pictures. I will show you some pictures one by one. You should narrate what is happening in the picture, what animals are doing at the moment, what was happening in the story before and what will happen later on after the incident shown in the picture."

All the 10 cards were presented one by one in the given sequence and the child was asked to narrate the story according to the instructions given. Each story narrated by the child was audiotaped. Encouragement and prompting was given whenever necessary during the testing. Care was taken not to be suggestive in prompting. After all the stories were narrated, probings were made/child was asked for elaboration on specific points wherever required.
INTERVIEW OF ENURETIC CHILDREN

Each enuretic child selected in the sample was interviewed individually with the help of self-designed interview schedule (Appendix-3). The child was asked about his/her satisfaction and dissatisfaction with parents, siblings, teachers, schoolmates, studies, etc. Probings were also made about child's feeling about his/her enuretic problem, the amount of awareness in the child about this problem, willingness to give-up enuretic behaviour etc. The interview data was recorded with the help of audiotape.

INTERVIEW OF PARENTS OF ENURETIC CHILDREN

Parents of each child were interviewed for the purpose of analysing the role of family factors in the causation of enuretic behaviour of the child. They were taken in confidence and told that the success of treatment of their child's enuretic problem will depend on the accuracy of the required data pointed by them during the interview.
Further, they were assured that the data will be used strictly for treatment and research purpose only. Self-constructed interview schedule (Appendix-2) was used for the interview. Questions regarding socio-psychological environment of the family were asked from them. Interview data was recorded with the help of an audiotape.

Thus, the administration of CPM, CAT and SES questionnaire was done on the children of both the groups i.e. enuretic children as well as their non-enuretic counterparts. The children of Group I (enuretic) were also assessed for nutritional status and interviewed individually. The parents of these children were also interviewed as discussed above.
PART 'B'

PROBLEM

To ascertain the relative efficacy of behaviour modification techniques alone, pharmacotherapy alone, and the combined use of behaviour modification techniques and pharmacotherapy in the modification of enuretic behaviour among children.

HYPOTHESIS

Behaviour Modification techniques in combination with pharmacotherapy are more effective than behaviour modification techniques alone and pharmacotherapy alone in the treatment of enuresis among children.

OPERATIONAL DEFINITION OF TERMS

BEHAVIOUR MODIFICATION (BM) TECHNIQUES

Behaviour modification is the application of experimentally established principles of behaviour to the problems of behaviour. BM is often called 'behaviour therapy' or 'conditioning therapy'. Broadly speaking, BM refers to any
attempt to use the learning principles of classical or operant conditioning to change human behaviour. Many techniques of BM based on these principles have been developed. In the present study a multimodal package of BM techniques consists of – parents' counselling, toilet training, bladder control training, reinforcing the child to keep the bed clean and dry with the help of contingency contract.

COUNSELLING

Precisely, counselling is the process which takes place in a one to one relationship between an individual beset by problems with which he cannot cope alone and a professional worker whose training and experience have qualified him to help other reach solutions to various types of personal difficulties.

TOILET TRAINING

Toilet training refers to helping a child in arising and going to toilet to urinate. Parents are advised to wake the child with the help of an alarm clock after every three hours
during child's night sleep and help the child to go to toilet for urination.

BLADDER CONTROL TRAINING

This refers to encouragement or reward for delaying micturition for increasing lengths of time during waking hours.

CONTINGENCY CONTRACTS

Contingency contracting is a behavioural change procedure in which an agreement is made between the persons who desire behaviour to change (parents, teacher, counsellors, etc.) and those whose behaviour needs to be changed (child, student, client, etc.). Contingency Contracts usually in the form of written agreement specify relationship between behaviours and consequences. The contract clarifies the positive and negative consequences that can be expected to follow specific behaviours.
PHARMACOTHERAPY

Pharmacotherapy may be defined as attempts to modify or correct pathological behaviours, thoughts, or moods by chemical or other physical means.

SAMPLE

Nocturnal enuretic children selected in the sample in the first part (Part 'A') of the study were taken for the modification of enuretic behaviour in this part of study. The age range of these children was 5-10 years and they were selected on the basis of inclusion-exclusion criteria prescribed in DSM-IV. Subjects were randomly assigned to 3 groups of 10 each. Group A was treated with pharmacotherapy alone (by pediatrician), Group B was treated with BM techniques alone, and Group C was treated with combined use of BM techniques and pharmacotherapy.
DESIGN

Randomized group design for the case of more than two independent groups is used. The study is designed on the lines of constructive and comparative designs which have become popular in recent years in clinical research. Comparative studies typically contrast the efficaciousness of two or more dissimilar techniques (Sloane et al., 1975). The constructive design (Mcfall & Twentyman, 1973) involves adding component to a basic treatment strategy in order to increase its effectiveness. Combining separately effective techniques seems to be a heuristic move for identifying increasingly efficaciousness of treatments for applied purposes.

PROCEDURE

A baseline measure of frequency of nocturnal enuresis in case of each child was established. For this purpose, a frequency chart (Appendix-'4') was given to parents of each child and they were asked to fill up the
frequency of enuresis of their child daily in the chart given to them. The chart was monitored by the researcher and the average frequency of enuresis of one week was taken as a baseline measure. After establishing the baseline for all three groups, intervention was started. Initially three months intervention was planned. A record of each child's daily enuretic behaviour was maintained by parents during intervention period.

Group I was treated with pharmacotherapy by pediatrician. A dose of 25 mg of Desmopressin daily at bedtime for three months was given. Group II was treated with multimodal package of B.M. techniques designed for this purpose by the researcher. Group III was treated with the combined use of both these i.e. pharmacotherapy and B.M. techniques. The procedure of B.M. techniques is as follows-

1. PARENTS COUNSELLING

According to the psychological problem of each particular child and the concerned family, parents
were advised to bring desirable change in their own behaviour with the child, e.g. if the child was found to feel neglected, rejected and insecure, the parents were advised to give more time to the child, give more love and care, avoid rejection of the child and take care of his/her emotions.

2. TOILET TRAINING

Parents are asked to wake the child up every three hours using an alarm clock during nocturnal sleep and ensure that the child goes to toilet for urination.

3. BLADDER CONTROL TRAINING

This training involved encouragement for delaying micturition for increasing lengths of time during waking hours. Parents were guided to conduct this training. The child was encouraged to delay micturition starting from 30 seconds and gradually increase to as much as the child could tolerate.

4. CONTINGENCY CONTRACTS

A contract was negotiated with the child by the
parents specifying the desirable behaviour to be performed and the reinforcement available for performing the desirable behaviour. A contingency contract was designed for each enuretic child jointly by parents and researcher. Reinforcements were selected according to the preferences or prepotent behaviours of the child.

After intervention, a post measure of 3 months frequency of enuresis in case of each group was taken. Average frequency of enuresis of one week after intervention served as post measure of enuresis.

FOLLOW UP

Four weekly follow-ups followed by two monthly follow-ups followed by one six monthly follow-up were done in case of each child. The researcher met the child and parents personally to ascertain the stability of behaviour change that resulted from intervention.