An Investigation into some of the Personality Correlates of Stuttering and to derive an Effective Treatment Package Programme to suit a majority of Stutterers

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By

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Dedicated
in memory of
my Father and Mother

CERTIFICATE

I hereby certify that the Thesis entitled ***"An Investigation into some of the Personality Correlates of Stuttering and to derive an Effective Treatment Package Programme to suit a majority of Stutters",*** *submitted by* ***Mr. Kalaiah Puttaiah,*** *for the degree of Ph.D., to the University of Mysore, embodies the results of bonafide research work under my guidance and direct supervision.*

I further certify that the work is original and that the thesis or part ***thereof*** *has not formed the basis for the award of any other degree or diploma.*

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DECLARATION

I, Kalaiah Puttaiah, declare that this Thesis entitled **"An Investigation into some of the Personality Correlates of Stuttering and to derive an Effective Treatment Package Programme to suit a majority of Stutterers"** is the outcome of research work carried out by me under the supervision of **Dr. Mewa Singh,** Department of Studies in Psychology, University of Mysore, Mysore.

I further declare that the Thesis has been composed by me and has not formed the basis for any other degree or diploma.

(Kalaiah Puttaiah)

Place : Mysore
Date : 15.01.1993

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CHAPTER - 1

INTRODUCTION

Stuttering has often been considered a riddle Stuttering is perhaps more than a riddle. It is atleast a complicated, multidimensional jigsaw puzzle, with many pieces still missing. It is also a personal, social, and scientific problem whose equation has not yet been stated completely, a problem with many unknowns (Van Riper, 1982).

Among all the communication disorders, stuttering has probably received more attention, because of the way in which it dramatically exposes many of the unpleasant sides of social living. As we know that speech is the most effective medium of communication, when once, in a given individual this communication is affected due to speech disorders like that of stuttering, his entire social interaction will be disturbed.

For many years, research and clinical interests delved into the personality and adjustment problems of the stutterers. It was believed that a typical stutterer was more neurotic than a nonstutterer. A stutterer feels that he is looked down upon by others, because of the disfluency of speech. He feels embarrassed, frustrated, and/or humiliated by his stuttering. So stuttering is a personal problem as well as a speech problem.

Stuttering usually develops between the age of 2 and 6 years, although it may develop in later childhood also.

It undergoes many changes in the course of time. As age advances, and during adult stage, the severity may also increase and there is a lot of change in personality of the stutterer, because of environmental factors. Stuttering varies in frequency when it is affected by linguistic variables, by the situation in which the stutterer is speaking and by the nature of the social interaction. The frequency of stuttering is also influenced by communicative pressures, such as time pressure, the number of listeners and their reactions and social approval. According to many authorities, stuttering is not a disorder in the sense of a disease like aphasia, schizophrenia or cerebral palsy. It is certainly a deviation from normal personality functioning particularly manifested in the communicative process.

Recent research has shown us that stuttering should be considered not as a unitary disorder, as it was in the past, but as a disorder that has a variety of components. As long ago as in 1889, Sikorski suggested that stuttering might be a group of disorders placed together because of insufficient analysis. Van Riper (1971) stated that "the hypothesis that the population of stutterers is not homogeneous, that it includes subgroups that can be differentiated is an extremely attractive one" (P.249). Additional evidence supporting heterogeneity can be drawn from the variety of treatment approaches that have proved efficacious with some stutterers but not with others.

"Stuttering occurs when the forward flow of speech is interrupted abnormally by repetitions or prolongations of sound, syllable or articulatory, or by avoidance and struggle behaviours' (Van Riper & Emerick, 1990, P.294). Several attempts have been made by noted professional authorities to give an adequate and workable definition of stuttering. Traditionally it has been viewed as a disorder in which the "rhythm" or fluency of speech is impaired by interruptions or blockages. When the flow of speech is habitually often interrupted by repetitions, hesitations and prolongation of sounds, syllables, or words, so as to call the attention of the listener to the manner of speaking rather than to the content of what is spoken, it is recognized as stuttering.

Over a span of more than 2,000 years, many different ideas have been offered to explain the nature, cause and treatment of stuttering.

Literature indicates that several attempts have been cade to locate the causative factor of stuttering, but none of them have definitely indicated any single factor which causes stuttering behaviour. From the time of Aristotle till today, many have attributed stuttering as an organic condition. Some have considered that stuttering is due to the dysfunction of some articulatory organs as lips, jaw, palate etc. Van Riper (1971) stated that Sir Charles Bell believed that causative factor of stuttering is some respiratory abnormality and hence several breathing exercises for

improving the speech of stutterers were suggested. Orton and Travis have advocated the cerebral dominance theory, according to which the stutterers have been thought to have lower margins of cerebral dominance which could result in desynchronisation between the paired structure of speech leading to stuttering blocks (cited in Curlee & Perkins 1985). Attempts have been made to explain stuttering behaviour on the basis of Wischner's anticipatory theory of stuttering, diagnosogenic theory of stuttering, by Johnson 1957), Learning theories (Johnson, 1955, Brutten & Shoemaker, 1967) etc.

PERSONALITY CHARACTERISTICS OF STUTTERERS

There has been considerable body of research over the past 50 years, focusing on the personality and the adjustment of the stuttering individuals. But, no typical personality pattern that is unique to stutterers has been found. Stutterers appear to differ in much the same way as do normals from neurotic or psychotic patients.

A large number of studies have been carried out both in India and abroad, to know the personality characteristics of stutterers. Some of the findings have shown that they do not show typical personality patterns, but they are socially withdrawn, introverted, anxious etc (Raj & Rao, 1970). Some studies have revealed that there is no significant difference between stutterers and nonstutterers in their personality

characteristics and also that they do not present a unique type of personality. So, despite the existence of rather rich literature, the relationship between stuttering and personality is often contradictory and rather unclear.

According to Goodstein (1958) the first study on the personality of stuttering is said to be by McDowell in 1928 and he found essentially no difference in degree of adjustment between the two groups (stutterers and non-stutterers). But Bender found that stutterers were more introvert neurotic, less dominant in interpersonal relationships and lacking in self-confidence. Schultz reported that stutterers were submissive, inhibited, hyper-sensitive and asocial. Richardson also found that stutterers were more socially introverted and serious in their outlook on life's problems (cited in Goodstein, 1958).

Goodstein (1958) summarized research studies upto 1957, and came to the conclusion that the findings from such studies have been conflicting and do not provide any significant difference between stutterers and nonstutterers, in terms of maladjustment or possession of a typical personality pattern unique to stutterers. Research reviews on stuttering by Beech and Fransella, (1968), Bloodstein, (1969) and Sheehan, (1970) have failed to demonstrate a significant relationship between stutterers and their personality characteristics. On the other hand, Bloch and Goodstein (1971), based on their research, are of the opinion that

"adult stutterers are some what more anxious, some what less self-confident, and some what more socially withdrawn than nonstutterers" (p.310).

Study by Prins (1972) indicated no correlation between personality and stuttering. He remarks that "persons who stutter do not seem substantially poorer in personality adjustment than person who do not. Specifically, the correlation data suggest an even stronger conclusion that whether a person stutters, and the degree to which he stutters, has nothing to do with his personality".

Studies done in India have brought out certain characteristic common findings among stutterers (Devaki, 1981, Hedge, 1972, Nammalvar and Rao, 1983, Raj, 1982, Raj and Rao 1970). Raj and Rao (1970) reported significant difference between stutterers and nonstutterers on the neuroticism and extraversion scale of Eysenck Personality Inventory. Stutterers had closer affinity to neurotics than to, normals and they were found to be more introverted nearotics than extraverted neurotics. Raj (1982) is of the opinion that "stuttering is basically a deviant personality functioning mainly manifested in the qualities, namely, depressive tendency, emotional instability, introversion, feelings of inferiority and disturbed interpersonal communication".

Hegde (1972) reported that stutterers emerged as less extraverted than the average, and hence, they can be considered as introverts with their degree of introversion roughly corresponding to that of anxiety patients, Devaki (1981) found greater adjustment problems among stutterers than nonstutterers. She reported that the stutterers as a group are low in self-confidence, indicating guilt feelings, fear in family life and more concerned about their speech problem. Further her study also indicated that interpersonal relationships of stutterers are affected due to stuttering. Study by Nanmalvar and Rao (1983) indicated that stutterers show high degree of identity disturbance in the dimensions of interpersonal identity compared to nonstutterers.

The research reviews give us an inconsistent relationship regarding the personality characteristics of stutterers. But, based on our clinical experience and having tested a large number of stutterers on several questionnaires, we believe that there are personality differences between stutterers and nonstutterers. This statement is based on observations, clinical interviews and testing by questionnaires at Department of Clinical Psychology, All India Institute of Speech and Hearing, Mysore.

The treatment of stuttering is a matter of considerable controversy. The methods that have been attempted with some degree of success are extremely varied, and the recorded

history of their use goes back in some cases to classical antiquity. Eldridge and Rank stated that our earliest known references to stuttering dates back to about 2000 B.C. during the Middle Egyptian dynasty. Greek and Roman references have also been found. Many people including Hippocrates, Aristotle and Galen have presented their views on stuttering (cited in Ham, 1986).

Over an extended time, the treatment of stuttering has been varied. Methods have included holding pebbles in the mouth, blistering or deadening applications to the tongue, clenching teeth, speaking on inhalation, talking out of one side of the mouth, alternating hot and cold baths, sticking fingers in a light socket, eating raw oysters, traveling to religious shrines, etc. Modern drug therapy and the old psychoanalytical psychotherapy have been found to be of little value by the clinicians. Various techniques of behaviour therapy like masking, speech shadowing, prolongation, delayed auditory feedback and anxiety reduction have been used with stutterers with some success. A careful observation of therapeutic studies over many years does point out that no single method of treatment could be completely effective in elimination of stuttering. This would also suggest that different types of stutterers may respond to different techniques of treatment. Because some components are common and others unique among stutterers, it would be worth while to evolve a package of treatment procedures which, when tried systematically, would eliminate stuttering.

THE PRESENT WORK: ITS NEED AND OBJECTIVE

It is evident that there are many different treatment techniques for stuttering. It would appear that these treatment do contribute towards the gaining of fluency for some stutterers. But, it is still unclear whether a given stutterer would benefit from all these treatments. Stutterers and non stutterers do differ in terms of the degree of possession of a personality trait, e.g., anxiety, assertion, introversion, etc. If a comprehensive personality questionaaire like the 16 P.F. or MMPI is tried with both stutterers and nonatutterers, we are more likely to find, as stated earlier, that the stutterers profile may show deficiencies on certain personality traits. This in itself should point out what different technique are to be tried and in which order to give maximal benefit to him.

Most of the therapeutic techniques focus their attention on the disorder rather than the personality of stutterers, though it has been recognized long ago that while treating stuttering the environmental influence and the personality of the stutterer should be taken into account. As majority of studies concentrate only on the stuttering behaviour, there is a high degree of relapse, even after successful treatment. So it justifies us to concentrate on the total personality of the stutterers.

The existing literature about therapy of stutterers has so far clearly indicated that no single isolated treatment procedure would be sufficient to eliminate stuttering although it may help in gaining of some fluency. More often than not, single treatment procedures have been tried like prolongation, speech shadowing, syllable timed speech etc. However, serious attempts have not been made to use a combination of treatment procedures suited to a given stutterer. In studies where two or more treatment procedures have been used, it is difficult to find out which one of the methods has brought out how much of improvement and which method did not bring any improvement at all. It is obvious that when the clinical method used is an eclectic one it is difficult to evaluate the effect of any single constituent technique.

Rarely researchers have used treatment procedures by taking into account the personality assets or deficiencies of stutterers. If and when a combination of techniques have been used, rarely have they taken cognizance of personality of stutterers. There have been few studies where they have tried to correlate personality traits and the outcome of treatment methods. Thus, there is a definite need to investigate the personality assets and deficiencies of stutterers and sort out techniques of treatment suitable to them. Here not only we are concentrating on personality traits but also concentrating on the pattern of stuttering.

To illustrate by example, a stutterer with a high degree of anxiety does require suitable methods to eliminate anxiety and then pass on to other techniques like rhythmic speech. However, if we take into account the most frequently observed deficiencies among stutterers, it would be highly advisable to think of using a combination of treatment procedures systematically and in a sequential order to take care of both the personality deficiency and the pattern of stuttering. The present study focuses on this problem.

OBJECTIVES OF THE STUDY

The main objectives of the study are as follows:

a) To find out the personality correlates of stutterers.
b) To subject all the stutterers to undergo certain treatment techniques in a sequential order.
c) To correlate the treatment outcome with the personality traits of stutterers.
d) To derive a package of treatment program to suit a majority of stutterers.

The terms and definitions used in the present study is given in Appendix-A.

CHAPTER - II

CHAPTER - II

REVIEW OF LITERATURE

A considerable body of research has been developed over a 50 years period, focusing upon the personality and adjustment of stutterers. Of all the functional pathologies of speech, the phenomenon of stuttering has received the greatest attention from researchers. This severely hesitant, spasmodic attempt at speech is often explained in terms of psychological or personality factors either in the stutterer himself or in his background (Bloch and Goodstein, 1971).

Bluemel, described stuttering as a narcissistic neurosis, and Freund, described it as an "expectancy neurosis" and a "social neurosis". Many clinicians have viewed stuttering either as essentially neurotic or as a symptom of some underlying personality disturbance. From a historical standpoint, clinical descriptions of the stuttering personality - insecurity, shyness, excitability oversensitivity - have varied little and have led many to the belief that personality disturbances inevitably accompany these disturbances in speech (Bloch & Goodstein, 1971).

Stuttering has been considered as a neurosis by many authors in the past. But serious, scientific investigations on stuttering phenomenon began in 1930. During 1930's numerous investigators - Travis, Johnson, Bryngelson, West and Van Riper - explored a vast range of possible differences between stutterers and nonstutterers.

With the development of clinical psychology and more promising techniques in the psychological test batteries, the exploration of personality of stutterers resumed in earnest. A greater variety of personality assessment techniques and experimental procedures have been used in studying the adult stutterers, e.g., projective tests, personality inventory/questionnaire, self concept measures, clinical inventory etc.

An attempt has been made here to review only those studies which pertain to the present study and which could contribute to this area of research.

M.M.P.I. STUDIES

Personality research on stuttering reached a peak in the 1950's. An outstanding development was the use of the Minnesota Multiphasic Personality Inventory (MMPI). This inventory consisted of items empirically derived in research on psychoneurotic subjects and it was standardized with careful and sophisticated attention to factors of reliability and validity. Numerous studies on personality adjustment of stutterer have been carried out by using MMPI. The results of these investigations produced a very satisfactory measure of agreement. By and large, stutterers showed a consistent tendency toward less favorable adjustment than nonstutterers.

Brown and Hull found that the stutterers (N=59) had low scores in the area of social adjustment but not in morale, family relations, emotionality or economic conservatism on the MMPI scale when compared with test norms. Thorn reported that the scores of stutterers fell within the normal range and the composite MMPI profile revealed no evidence of neuroticism. There was no common "personality type" of substantial difference for more severe and the less severe stutterers. Thomas reported a slight elevation in the range of normal adjustment in 29 stutterers. Pizzat noted that the stutterers (N=53) had poorer scores on all clinical scales except psychopathic deviate, but the scores fell well within normal range (Cited in Bloodstein, 1975).

Dahlstrom and Craven (cited in Bloodstein, 1975) compared 100 college stutterers with 100 normal speaking college freshmen, 1763 psychiatric patients and 3966 college students who had sought counselling help on their personal problems. The authors reported that while the stutterers did differ from control students, they were not as severely disturbed as the psychiatric patients. They also reported no significant relationship between MMPI scores and the severity of stuttering. Walnut (1954) found that stutterers (N=38) were all within normal range on all 10 clinical scales, but on two other scales, depression and paranoid, the stutterers had significantly high scores, indicating adjustment problems.

Lanyon (1966) correlated the MMPI scores of 25 severe stutterers at the beginning of therapy with independent speech improvement ratings. The stutterers who improved as a result of speech therapy were reported to resemble those who improved as a result of psychotherapy, in terms of ego - strength and non-deviancy in personality and thinking patterns. Unlike the psychotherapy group, however those who had stuttering therapy were found to be more energetic, less pessimistic and less socially alienated.

Sermas and Cox (1982), administered MMPI and SCL-90-R on stutterers (N=19) and two comparison groups composed of psychiatric patients (19 BD group and 19 NBD group). Forty-seven patients of the 57 tested demonstrated a T-score of 70 or greater on atleast one MMPI scale. Although 74% demonstrated such an elevation, no significant elevation was found when the stutterers scores were averaged and considered as a group. The author states that the stutterers appear more sensitive in social situations than the psychiatric patients.

EYSENCK PERSONALITY INVENTORY STUDIES

The Eysenck Personality Inventory (E.P.I.) has been widely used to study the personality characteristics of stutterers and nonstutterers. Raj and Rao (1970) were the first to use this test to study the personality differences of stutterers and nonstutterers to provide Indian norms for it. E.P.I. was administered to a group of 100 stutterers and 100 nonstutterers. The study pointed out a significant

difference between the two groups on the N and E scales. As a group the stutterers were more inclined towards introversion and introverted neurotics were many more among them than were extraverted neurotics.

Hegde (1972) used Eysenck Personality Inventory on 106 stutterers. He compared the stutterers mean scores on the neuroticism and extraversion scales with the test norms of psychiatric and normal populations. Hegde concluded that stutterers are more introverted than the average and can be considered introverts and more neurotic than the normal population.

Raj (1982) compared stutterers and normals on Personality Trait Inventory and concluded that stuttering is basically a deviant personality having depressive tendency, emotional instability, introversion, feelings of inferiority and disturbed interpersonal communication.

Gudi and Kumar (1986) studied stutterers and normals (N=75 in each group) on the Junior personality inventory constructed and standardized by Mohan Singh and Kalra. The study indicated that there was no significant difference on the trait of extraversion but significant difference was found on neuroticism scale. Singh (1986), using Eysenck personality inventory on 75 stutterers, reported that stutterers, were found to be less extraverted than the average and had more affinity towards introversion.

PROJECTIVE STUDIES

The study of "adjustment" as defined by a questionnaire yields a rather limited view of personality. For many years psychologists had been attempting to device tests that would achieve more penetrating insights into the nature of an individual character structure. As a result, projective tests have gained importance in personality assessment. But the chief disadvantages of the projective tests is the difficulty in obtaining scientifically valid measures. As a result, projective tests in their present form have been the subject of considerable controversy, and generalization about stutterers based on such tests must be viewed with some degree of caution.

Rorschach studies: Of all projective techniques of studying personality, the most extensively developed is the well-known Rorschach test. On the basis of the subjects responses, inferences are drawn about such specific personality traits as capacity for abstract thinking, habitual concern with details, egocentricity, spontaneity, emotional stability, and so forth. This widely used test has been administered to stutterers repeatedly with findings that are conflicting and generally inconclusive.

Ingebregsen analyzed Rorschach responses of 40 adult stutterers and found substantial evidence of neuroticism. But, on the other hand, Richardson did not find any significant difference between stutterers and nonstutterers (N=30 in each group). She concluded that the stutterers

showed a tendency not to "recognize their inner promptings" or to "respond impulsively to their outside environment" (cited by Bloodstein, 1975).

Santostefano (1960) reported significant difference between stutterers and nonstutterers (N=26 in each group). Stutterers showed a significantly greater decrement in performance under stress than did nonstutterers.

Sermas and Cox (1982) administered Rorschach and T.A.T to 14 stutterers and noted that "the two projective techniques elicited emotional responses similar to the various emotional and personality trends found in the clinical interview of the stutterers. A scattered variety of other conflict areas were also found, including achievement, impulse control, dependency, sexuality and authority".

T.A.T. STUDIES

The Thematic Apperception Test(T.A.T.)is another well known projective technique that consists of a series of pictures around each of which the subject is asked to make up a story indicating what is happening the events that led up to it, the thought and feelings of the characters, and the outcome.

Bloodstein and Schreiber (1957) reported no difference in obsessive-compulsive signs on the T.A.T., between stutterers and nonstutterers, (N=15 in each group). On the hand Silverman (1952) reported that T.A.T. responses revealed negro stutterers to have more dominant mothers than negro nonstutterers (N=10 in each group).

Goodstein, Martisp and Spielberger (cited in Goodstein, 1958) using T.A.T. in 30 stutterers and 30 nonstutterers, found no significant difference between stutterers and nonstutterers. Solomon (cited Bloch and Goodstein, 1971) from the T.A.T. responses of 35 stutterers and 35 non-stutterers concluded that stutterers, and nonstutterers did not differ in terms of broad category of aggression.

Other projective studies:

Many researchers have used a variety of projective techniques to asses the personality of stutterers. They have used some of the partially projective techniques like Sentence Completion Test, Word Association Test etc. However it may be stated that research studies using these tests are few in number.

Boland using speech anxiety test (Modified Blacky Test) reported that level of anxiety associated with speech situation was significantly greater for stutterers. Bernhardt reported that frequency of stuttering in a group of 44 stutterers was significantly related to those areas of psychosexual conflict as revealed by the Blacky Test (cited in Goodstein, 1958). Bloch and Goodstein, (1971) citing the studies by Carp and Eastman reported that areas of psychosexual conflict significantly related to stuttering (N=20 and 30 respectively) as revealed by the Blacky Test.

On the other hand Madison and Norman and Quarrington using the Rosenzweig Picture-Frustration Test, reported inconsistent findings of strong tendencies toward self aggression among stutterers (cited in Goodstein, 1958).

Emerick (cited in Bloch and Goodstein, 1971) using Rosenzweig picture Frustration Test measured frustration among tonic stutterers, clonic stutterers and nonstutterers (N=20 in each group) reported no difference among these three groups. Tuper and Chambers (1962) using the Picture Identification Test on 48 stutterers concluded that stutterers were overly sensitive to blame and criticism and exhibited quite negative attitudes toward affiliation needs.

Snyder, Handerson, Murrphy, and O'Brien used Sack Sentence Completion Test to stutterers and parents of stutterers (N-75 in each group) and found that stutterers as a group present a more disturbed personality structure than parents of stutterers (cited in Sheehan, 1970).

Projective studies which are designed to study gross personality differences between stutterers and nonstutterers have yielded inconsistent results and no generalization about the personality or adjustment of the adult stutterers are possible. We need not attach much importance to this because the projective test in themselves do not need required

SELF-CONCEPT

English and English (1958) define self-concept as "the self as the individual is known to himself". Kelly (1955) saw the notion of self as being related to other ways in which individuals view their world. Several studies have investigated the self-concept of stutterers. Fiedler and Wepman (1951) who conducted the earliest self-concept research on stutterers, were in fact concerned with the hypothesis that the stutterer has a characteristic view of himself because of his social handicap. They used Q-technique to study 10 stutterers and 6 nonstutterers and found no significant difference between stutterers and non-stutterers. Wallen (cited in Bloodstein, 1975) reported that stutterers exhibit significant difference in terms of specific self-concept relationship and specific personality traits in comparison with nonstutterers (N=30 in each group). He found stutterers to be less independent, more lacking in emotional control, less self accepting and more self rejecting.

Nelson investigated self-concept of stutterers more thoroughly using Q-technique. The result showed that self-concept of stutterers was more closely focused on stuttering than was that of a comparable group of student therapists. The stutterers tend to perceive themselves primarily in terms of their speech, while Rahman using Q-technique compared real and ideal self-concept of stutterers and nonstutterers found

some differences in the real self-concept but very few in ideal self-concept. Wallen using Q-sort technique on a group of stutterers reported that stutterers showed lower actual self-concept as compared to their ideal self-concept (cited in Van Riper, 1982).

Buscaglia (1962) studied 30 stutterers, 56 male non-stutterers and 26 psychotic male adolescent (demonstrating total role disintegration) and reported that stutterers were less able to perceive their own and others life role and they were more inadequate.

Fransella (cited in Bloodstein, 1975) tried to establish whether the stutterer sees himself as "a stutterer". The stutterers did not associate the idea of themselves with the idea of being stutterers. The unexpected finding was that the stutterers (all males) and both sexes of nonstutterers did not differ significantly in the way they rated those concepts. Devaki (1981) using Sacks Sentence Completion Test (Kannada version) on stutterers and nonstutterers (N=30 in each group) concluded that stutterers have greater adjustment problems and more concern about their speech problems. They were also low in self-concept, had guilt feelings and fears in family life.

LEVEL OF ASPIRATION

One way of studying a person's concept of himself is to determine how realistic it is by comparing it with the reality. This can be assessed through level of aspiration tests. These tests consist of a series of trials in a test of skill, after each of which the subject is asked to predict his score on the next trial. The average discrepancy between his prediction and his last performance is taken as a measure of his aspiration level. Level of aspiration behaviour, which is related to self-concept and self-esteem has been used to measure the personality characteristics of stutterers.

Sheehan and Zelen using the Rotter level of aspiration board, found that stutterers were significantly lower in level of aspiration, that they stayed in the success area of goal-setting, predicted more modest performances for themselves and tried to avoid the possibility of failure (cited in Van Riper, 1982).

Sheehan believes that the lower level of the aspiration of the stutterers is closely related to their ego-protective behaviour and it can be viewed as a reaction to stuttering and not as an etiological factor which contributes to stuttering. Sheehan administered the level of aspiration for fluency to 60 stutterers and found that greater the role commitment to fluency, greater the pressure towards perfect speech and greater the anxiety regarding the speaker role (cited in Van Riper, 1982).

OTHER PERSONALITY STUDIES

Several studies have been carried out on personality correlates of stuttering by using other personality inventories. According to Bloodstain (1975) the study by McDowell in 1928 was the first published study of the emotional adjustment of stutterers. McDowell used several devices for measuring emotional adjustment including the Kent-Rosanoff Word Association Test and two early personality inventories, the Woodworth-Mathews and Woodworth-Cady questionnaires. McDowell found no difference in degree of adjustment between the two groups. These conclusions were substantiated by Johnson in 1932 in his study of stutterers among university students. Johnson administered the Woodworth-House Mental Hygiene Inventory to a group of 50 stutterers and a group of psychoneurotics and concluded that though the stutterers reported significantly more problems than normals, their responses were more like House's normal standardization group.

However, Bender reported results in a marked disagreement. He administered Bernreuter Personality Inventory to 249 college stutterers and 249 nonstutterers and found that stutterers tended to be more neurotic, more introverted, less dominant, less self-confident, and less sociable than the non-stuttering students. These findings were confirmed when Brown and Hull tested stutterers with the Minnesota personality scale. They found that stutterers tend

to be poor in social adjustment as opposed to most other areas of emotional health (e.g., "morale", "family relations", "emotional" etc) (cited in Bloodstein, 1975).

Several investigators have found no difference between stutterers and nonstutterers on personality inventories. Bearss using Adams Personal Audit and the Potter Incomplete Sentence Blank, Berlinsky using the Saslow Screening Test (cited in Van Riper, 1982) and Brutten (cited in Sheehan, 1970) using the Maslow Security Index, reported no significant difference between groups of stutterers and matched control groups (N=23, 14 and 16 respectively).

A number of inventory studies have reported evidence of serious maladjustment in stutterers. Bender reported that there was a particular kind of stuttering personality and that stuttering is definitely associated with personality maladjustment. Schultz and Perkins both reached the same conclusion (cited in Goodstein, 1958). Richardson using Guilford Inventory with 30 stutterers and 30 nonstutterers reported that stutterers were significantly more socially introverted, more depressed and less happy go lucky than nonstutterers (cited in Bloodstein, 1975).

Spriesterbach (1951) compared 50 hospitalized psychotics and 50 stutterers on Word-picture Test of Social adjustment. He stated that stutterers resembled the normal males more than they did the psychiatric patients although they appear to be socially maladjusted.

Tupper and Chambers (1962) used, picture Identification Test (P.I.T.) to 48 stutterers and compared the results with college students and concluded that stutterers were overly sensitive to blame and criticism and exhibited quite negative attitudes towards affiliation needs. Sergeant (1962) also reported poorer social adjustment, less self-confidence, and greater emotional instability among stutterers (N=60) as determined by both Bell and Bernreuter inventory. Wingate (1962) used Edward Personal Preference Schedule on 70 male stutterers. The results indicated mild to moderate maladjustment in the area of social relationships. Anderson (cited in Bloch and Goodstein, 1971) using Guilford-Zlmmerman Temperament Survey and the Gordon Personal Profile, on 50 stutterers and 50 nonstutterers, found no difference in general emotional stability. However, they differed on several less global personality traits. Stutterers were reported to be more shy and less self-assured than nonstutterers but friendlier and more respectful towards others than normal speaking controls.

Sermas and Cox (1982) used Hopkins Symptom Check-list to 19 stutterers. The result indicated that the stutterers achieved higher absolute score than the two comparison groups (brain dysfunction and non-brain dysfunction group) on the interpersonal inventory, depression, anxiety and psychoticism dimension. The stuttering group was significantly higher than

the control groups on the interpersonal sensitive scale, reflecting feelings of personal inadequacy, uneasiness, inferiority, discomfort together with negative expectations during interpersonal interaction.

ANXIETY STUDIES

Broadly speaking negative emotion is a factor that has been associated with stuttering since at least 2400 B.C. (Rieber & Wollock, 1977). Negative emotions generally refer to fear or anxiety that is either speech situation specific or word specific (Van Riper 1973, Wischner 1950). Many studies which have explored the psychological aspects of stuttering and general personality characteristics of stutterers have emphasized the importance of anxiety in the phenomenon of stuttering. The association between stuttering and anxiety has been investigated with a number of quite different experimental and personality assessment techniques.

Studies on different psychological tests revealed high degree of anxiety among stutterers. Boland investigated chronic or general anxiety in stutterers as well as anxiety associated specifically with speaking on two indices derived from MMPI, Welsh's Anxiety Index, and Taylor Manifest Anxiety Scale. He reported that stutterers are higher in general (trait) and speech situation (state) anxiety than nonstutterers (cited in Bloodstein, 1975). Brutten used a measure of Palmar Perspiration (PSI) as an anxiety index with

a group of 33 stutterers and matched control group of 33 non-stutterers, reported intergroup differences in anxiety in a verbal situation (cited in Sheehan, 1970). But Gray and Karmen (1967) using the same anxiety index found no differences under either verbal or non-verbal conditions. However, they were able to demonstrate a relationship between anxiety and severity of the disorder. Groups with high and low nonfluency exhibited less anxiety than did a moderately dysfluent group.

Santostefano (1960) using both the Rorschach Content Text (RCT) and laboratory induced stress, concluded that stutterers are more anxious and hostile then nonstutterers. Angello (1962) using Tayler Manifest Anxiety scale on 10 stutterers found no significant difference between stutterers and nonstutterers. Two groups of 10 individuals were designed as high and low anxious by Taylor Manifest Anxiety Scale. The result indicated that difference in anxiety level did not contribute significantly to difference in stuttering decrements. However, high anxiety individuals indicated greater frequency of stuttering. The distribution of anxiety scores obtained from 50 individuals diagnosed as stutterers was compared with distribution obtained from 450 College students. No difference were obtained either in range of anxiety scores or the mean anxiety score. Gray and Brutten (1965) studied 21 stutterers and did not report any relationship between a change in the frequency of stuttering

and anxiety level. Whereas Riley and White (1967) gave the objective analytic anxiety battery to 17 stutterers and 17 nonstutterers found that the stutterers had more anxiety than the control group.

Gray and Karmen (1967) used Palmar Sweat Index as a measure of anxiety on a group of stutterers and non-stutterers. They studied the relationship between non-verbal anxiety and nonfluency adaptation in stutterers and non-stutterers. Their results indicated that: (1) the moderate nonfluency subgroup of stutterers demonstrate a significantly higher level of PSI than the high or low nonfluency subgroups of stutterers, (2) the low and high nonfluency subgroups of stutterers do not differ significantly in PSI level; and (3) the three nonfluency subgroups of nonstutterers do not differ significantly in PSI level.

Greiner, Fitzgerald, Cook and Djurdjic, (1985) used Revised Willoughby Personality Schedule (WPS-R) on 41 stutterers and 41 nonstutterers to find out social sensitivity in stutterers. Results indicated that the WPS-R clearly differentiated stutterers as a group from nonstutterers. Stutterers obtained high full scale scores as well as scoring higher on each individual test items. The authors concluded that WPS-R revealed "overwhelming anxiety in stutterers". They also stated that the test has demonstrated to measure hypersensitivity to interpersonal

stress or neuroticism in social situations. They suggested that the test (WPS-R) may be useful for evaluating general anxiety and for monitoring changes in emotional sensitivity as clinical intervention progresses.

Miller and Watson (1992) studied communication attitude, anxiety, and depression on 52 stutterers and equal number of nonstutterers. They administered Beck Depression Inventory, State-Trait Anxiety Inventory and Erickson Modified Scale of Communication Attitude. They found that moderate stutterers showed the strongest positive relation between measures of communication attitude and anxiety, very mild-to-moderate stutterers showed smaller but significant positive relation between measures of communication attitude and anxiety, and severe-to-very-severe stutterers showed no significant relation between measures of communication attitude and anxiety. Only for certain stuttering subjects negative communication attitude was positively correlated with overall anxiety.

CASE STUDIES

Clinical cases reported in the area of speech disorder, are almost always concerned with the personality of the speech handicapped individuals as an important factor in formulating the etiology of the problem and in evaluating the assets of the person for therapeutic planning. Inspite of the importance placed upon personality and adjustment of

stutterers in both diagnostic and therapeutic work, the research evidence relating to personality is widely scattering and there have been few attempts in studying personality of the speech handicapped (Wood & Williams 1976).

Some studies have been reported by studying the personality and adjustment of stutterers by means of clinical interview. Glasner (1949) in an uncontrolled impressionistic, non-statistical study, concluded that stutterers (N=70) show a long history of over protection and pampering and have over anxious, excessively perfectionistic parents. Bobbins (1964) utilized the clinical interview as an assessment technique for stutterers (N=490) and reported some traits showing maladjustment among a large population of adult stutterers.

LOCUS OF CONTROL STUDIES

Locus of control refers to a set of beliefs about the relationship between behaviour and the subsequent occurrence of rewards and punishments. The more precise phrase for these beliefs about locus of control is internal versus external control of reinforcement (I.E.). According to Graybill and Sergeant (1983) the I.E. concept was first outlined by Julian Rotter in 1966. Rotter proposed that locus of control construct dealt with the perceived locus of causality for events. The cause of reinforcement could either be the person (an internal belief) or causes not related to the person (an external belief).

The association between locus of control and anxiety has been investigated by many investigators. Persons holding external control expectancies admit to more experience of anxiety than do those who perceive themselves as internals.

Butterfield (1964) examined the relationship between locus of control and anxiety in 47 subjects using locus of control, frustration reaction, test anxiety and achievement attitude inventory. The results indicated significant correlation between locus of control and both facilitating and debilitating anxiety. Debilitating anxiety reaction scores increased and facilitating anxiety scores decreased as locus of control becomes external.

Stressburg and Hartman (1973) found that subjects scoring as the external direction in Rotter's I-E locus of control scale were significantly more anxious than those scoring in the internal direction.

Rajmohan and Kuppan (1980) used I.E. locus of control scale and IPAT anxiety scale questionnaire on 272 subjects and found no significant difference between internals and externals, as well as between males and females in the level of anxiety.

Rajani (1982) studied the relationship between locus of control and self esteem in a group of 20 neurotics, 20 schizophrenics and 20 normals. The results indicated that normal group was internally oriented as compared to the

experimental groups, neurotics and schizophrenics. There was a significant relationship between locus of control and self esteem among normal group, whereas self esteem in the clinical groups did not correlate significantly with locus of control.

Studies were also conducted to know the relationship between locus of control and extraversion-introversion. Platt, Poneranz and Eisenman (1971) used Rotter's I.E. scale, EPI and MMPI to 1100 college students and found locus of control to be unrelated to all measures of introversion and extraversion. They did find a correlation between externality and neuroticism, indicating that individuals with a more external locus of control tend to be more anxious than those with an internal locus of control.

Collins, Martin, Ashmore and Ross (1973) administered 63 item questionnaire to 63 subjects. The factors were analyzed and related to scores on the EPI and I.E scale. The results revealed that low system correlated positively with introversion and externality. But the correlation between Rotter's and Eysenck's scale was not significant. Researchers in general have reported that external locus of control is more closely associated with neuroticism than with extraversion. These studies suggest that internal-external locus of control and extraversion-introversion are basically independent dimension.

Burnes (1971) studied the relationship between locus of control and psychopathology using Rotter's locus of control scale and MMPI to 25 volunteers. Results indicated that the externality is related to psychopathology. There was a significant negative correlation between externality and the scale, that is the subject who were more internals tend to deny difficulties or inadequacies.

Findings of the study by Robert (1979) support the existence of meaningful relationship between greater externality and high levels of both general trait anxiety and test anxiety. A positive correlation has been reported by Abaramowitz (1969) between locus of control and depression among college students. He reported higher incidence of depression among the students who were more external.

Very few studies have been conducted to investigate the locus of control in relation to personality characteristics of stutterers. Thomas (1988) studied the locus of control in relation to some personality variables in stutterers (N=15 in each group) using I.E. scale, self esteem scale, purpose in life test and repression sensitization scale of MPG. The following conclusions were drawn:

1) Locus of control differentiates the two groups significantly. Stutterers are externally controlled.

2) The stutterers have low self esteem and are sensitive.

3) The PIL scores did not differentiate the two groups significantly.

4) The therapeutic intervention results in the shift of locus of control orientation from externality to internality.

Criag and Andrews (1985) reported that stutterers who moved during therapy in the direction of internality of locus of control (at least 5% changes) maintained their fluency ten months after treatment. Ladouceur, Caron and Caron (1989) used S24 (the short form of the Erickson scale of communication attitudes) Criag, Franklin and Andrews scale of locus of control for stutterers (N=9). Result indicates that perception of control, did not change from external to internal. Successfully treated stutterers became more external either at post-treatment or at follow up test.

From the review, it is evident that numerous studies have been carried out on the personality correlates of stutterers. Most that stutterers differ from nonstutterers on important personality traits.

TREATMENT OF STUTTERING:

HISTORICAL PERSPECTIVE

The background of stuttering therapy is ancient. Stuttering has plagued humanities for centuries and undoubtedly therapy for stuttering has plagued us for almost the same length of time. Eldridge and Rank state that our earliest known reference to stuttering dates back to about 2000 B.C., during the middle Egyptian dynasty. Greek and Romans blamed malfunctioning of the tongue for the halts and distortions of production. In the 18th century Mendelsohn recommended slow rate. Erasmus Darwin proposed a system of

easy attacks on articulated sounds, and a number of authorities championed various rhythm techniques. Arnott, in 19th, century, advocated using a continuous "e" sound between each, word and Hagerman suggested producing a continued "n" before each syllable. For a period of time, intervention included surgery, popularized by the great German surgeon, Ditffenbach, and many European surgeons busily transected muscles, removed wedges of lingual tissue, and severed nerves, but this method waned rapidly as the results failed to justify the pain and danger of the procedure (cited in Ham, 1986).

About a century ago, the Metronome's apparent predecessor (Muthonome) was used and many patented devices were developed, even to the extent of clamping silver tubes inside the mouth, metal plate across the palate, and adjustable spring screws in leather collars that fit around the neck and put pressure on the larynx (Eldridge & Rank, cited in Ham, 1986).

Over an extended time, the treatment of stuttering has been varied. Methods have included holding pebbles in the mouth, blistering or deadening application to the tongue, clenching teeth, speaking on inhalation, talking out of one side of the mouth, alternating hot and cold baths, sticking fingers in a light socket, eating raw oysters and traveling to religious shrines (Gottlober, cited in Ham, 1986).

Relaxation therapy, an old method, has been widely used for treatment of stuttering. In the late 18th century, Sandow trained his stutterers to achieve state of calm relaxation and serenity and found that much of the stuttering disappeared.

During the last years of the nineteenth century and the beginning of the twentieth, group therapy was offered in residential centres or homes called "stammerers institutes". The therapy included breathing exercises, reciting isolated sounds and word drills, chanting and singing, relaxing, and speaking each syllable or each word in unison with a wide arm-swing or a finger-tap. Most of the stutterers become fluent in the institutions, but disfluent when they come back to their homes.

Suggestion and pursuation are the two methods that are being used for the treatment of stuttering since long time. The essential theme of those techniques lies in patients belief that the therapist will enable them to overcome their difficulties (Frank, cited in Van Riper, 1973).

Suggestion comes in various forms. It may be direct or indirect or it may involve hypnosis or the form of autosuggestion. There are many studies reporting the treatment of stuttering by hypnosis. Moore, and Rousey cautioned that hypnosis should not be used alone, but only in conjunction with other therapies (cited in Van Riper, 1973).

Van Riper (1973) stated that hypnosis produced a marked increase in fluency and a decrease in the severity of the stuttering without accompanying anxiety but the effect usually wore off soon and required booster session to maintain relaxed way of speaking.

Persuasion is closely related to suggestion and probably represents one of its special cases, its major feature is the use of logic and reasoning to create belief. In therapy, the therapist first assertains the belief of the clients and then presents his own contrasting beliefs. In persuation, there is always the appeal to reason, to logic or perhaps to authority. Most of the persuasion therapies used with stutterers have tried to convince the client that he could speak fluently.

Psychoanalysis and psychotherapy have failed to produce normal speech in stutterers. Freud felt that psychoanalysis was not an appropriate method to treat stuttering, as he was unable to relieve the stuttering in one of his early patient (Van Riper, 1973). Wolpe (1961) cites a number of follow up studies that demonstrate the relative ineffectiveness of psychoanalysis. Van Riper (1973) is of the opinion that psychoanalysis alone can not attack the problem of stuttering effectively.

DURG THERAPY

Most of the drugs used in the treatment of stuttering have been classified as stimulants, sedatives or tranquilizers. Though drugs have been used for the treatment of stuttering, the objective measurement of their effect is lacking. A frequent result is that the drug has more effect on the complexity or severity of the blocks than on their frequency. According to Aron "it was postulated that reduction of anxiety and tension, brought about by the drug had greater influence on the severity of the stuttering than on the frequency with which it occurs" (cited in Van Riper, 1973).

Some studies indicate no significant effect of drugs on stuttering (Kent, 1963). Kent concluded that the use of drugs has not shown significant reduction in stuttering either directly without speech therapy or indirectly, using the drugs as adjuncts to therapy.

In the 1930's the new therapeutic approach has started by Bryngelson, Wendell Johnson, and Charles Van Riper. The new approach aimed directly at a reduction in the fear and avoidance of stuttering, while at the same time attempting to reduce the amount of difficulty through gradual modification of the stuttering pattern based on study and understanding of the behaviour of what it consisted.

A new approach to stuttering therapy that has lately undergone rapid development is the use of behaviour therapy technique. The instigation for the use of behaviour therapies has come from a variety of sources. Often it has been due to a growing skepticism about the effectiveness of traditional therapies. Behaviour therapists have introduced a wide range of techniques. Various modern techniques for the treatment of stuttering are now here with reviewed under separate technique/titles.

RHYTHMIC SPEECH

The history of rhythm therapy for stuttering is vague until about two centuries ago. Historical reviews have traced it back to ancient Greece, but they tend to cite the years 1800 to 1830. The recent upsurge of interest in the use of rhythmic stimulation techniques is usually traced to Van Dantzig, who described "syllable Tapping" therapy in 1940 (Cited in Van Riper, 1973).

Meyer and Mair (1963) developed a miniaturized, behind the ear type of electronic metronome. Meyer and Comley 1959) used a similar device to provide bilateral or unilateral signals on 48 stutterers. Of the 48 stutterers, 17 failed to respond to the method and they were the more severe stutterers. The authors reported that unilateral use seemed to produce better speech results than did bilateral devices.

There have been other reports on design and applications of the hearing aid type of metronome (Horan 1968, Wohl,1968). Wohl (1968) felt that the metronome reduced anxiety levels in general and inhibited awareness of speech and sensitivity to stress. Andrews, Harris and Kay (1964), reported on the use of syllable-timed speech with 35 stutterers. The subjects were taught syllable-timed speech in which all stress and syllable contrasts were eliminated. Then they started by repeating sentence modeled by the clinician; they than progressed to reading and, finally, to spontaneous speech using the syllable timed utterance. Group therapy was used over the next two weeks to stabilize syllable timed speech, explore attitudes and anxieties and begin outside practice. Group sessions dropped to a weekly schedule for the next ten weeks as transfer of syllable timed speech developed. Subjects were advised to use normal speech, switching the syllable timed speech only when they stutter. Following the dismissal, the severity groups all showed a resurgence of stuttering and then stabilized over the following year.

Brandon and Harris (1967) have also used syllable timed speech, with psychotherapy and desensitization to outside situations finding 64 per cent of a group of 28 stutterers still showing significant speech improvement on a follow up of at least 18 months. However, no data are provided on pretreatment speech of subjects. The authors concluded that

the syllable timed speech technique is not entirely successful but, it is effective and worthwhile in two thirds of the cases treated. Azrin, Jones and Flye found a reduction of 90 per cent or more of the stuttering for each subjects when a simple regular beat presented to them tactfully to the wrist by a portable apparatus. Brady reported the use of metronome whereby the subjects orally read in a very slow and relaxed manner with the beat of metronome. Brady reported that this procedure alone induced fluency (in 3 of the 6 stutterers) maintained at a rate of 158 to 200 words a minute (cited in Ham, 1986).

Wolpe (1969) found that a combination of syllable timed speech and relaxation resulted in 90-95 per cent improvement, which was found to have been maintained both as judged by him and by the patient's wife.

Meyer and Comley (1969) reported the use of rhythm with 48 stutterers, starting with word passing and falling back to syllable timing for those who had difficulty in the initial syllable. They divided the clients into three groups, which contained group therapy for purposes of problem solving, relaxation activity, and role playing situation. One group used a monaural portable metronome outside, the second group used binaural units, and the third group acted as unaided controls. Over all 35 per cent of the stutterers failed to master the rhythm technique, the majority of these being from

the least fluent, hard blocking stutterers. The clients showed no significant improvement by the termination of therapy but improved significantly during the follow up phase.

Wohl (1968) felt the metronome reduced anxiety levels in general and inhibited awareness of speech and sensitivity to stress. Plomley, Ingham and Andrews (1971) structured a twenty one day intensive programme combining syllable timed speech, contingent use of D.A.F. and situation practice for different groups, based on a token reinforcement pattern. They reported that the clients who received both technique (D.A.F. and syllable timed speech) could speak at normal and supranormal speech rates and maintain fluency, but syllable timed only clients could not maintain fluency at rapid rates of speech.

Ingham, Andrews and Winkler (1972) combined syllable timed speech, group psychotherapy, increased stuttering to highten motivation and a TRS (token reinforce system) used mainly to reduce stuttering and improve rate. Different combinations of these were used with 58 adult stutterers divided into groups. The authors reported that the token system and syllable timed programme resulted in the greatest changes in speech rate and percentage of stuttered syllables, compared to psychotherapy.

Brady (1971) extensively developed the rhythm therapy proposed by Mayer and Mair (1963). Brady considers the role of anxiety to be particularly important. Consequently, he integrates his "metronome conditioned speech training" procedure with a hierarchy of situation which typifies systematic desensitization therapy. The therapy program spread over five steps. The subject is first trained to speak according to the beats of the desk metronome as slow as 40 beats per minute . Second, the rate of speech is progressively increased. In step three, the miniaturized ear-piece metronome replaces the desk metronome and construction of situational fear hierarchy. The subject then follows a program of in viva "systematic desensitization" while wearing the ear-piece metronome. In the fourth step he once more words through the hierarchy without the aid of metronome. In the final stage, attention is directed to any mild relapses which occur from time to time. Brady suggested that severe stutterers may have to go as low as forty beat per minute whereas the moderate stutterers may be able to double that. He sets a goal of 100 to 160 syllables per minute without significant stuttering. Brady reported that of 23 stutterers who completed treatment, 21 showed a marked decrease in dysfluency level by 67 per cent and improvement in his general adjustment. Improvement has been maintained through follow up periods that ranged from 6 months to 44 months, but no subject reported to be completely fluent.

Silverman and Trotter (1973) study indicated reduction in frequency and severity of stuttering when the ear-pieces are worn continuously and intermittently for about one month. Berman and Brady (1976) reported the results of a survey on clinicians who used a miniatured, electronic metronome in the treatment of stutterers. The survey showed that 103 of 144 patients were judged as improved by 72 per cent. Those who used metronome tended to give better results than those who did not. Fifty seven percent of the respondent clinicians considered the metronome conditioned technique as a major advance in treatment.

The studies cited summarized, in some detail, a variety of approaches to metronome rhythm in therapy. In comparing rhythm techniques, especially metronome, to other fluency inducing methods, rhythm seems to provide the most, or very high levels of fluency for stutterers (Ham, 1986).

NEGATIVE PRACTICE

Dunlap introduced techniques of negative practice. He recognized the untenability of earlier theories which postulated that a response repeated under similar stimulus conditions increases the probability of recurrence of that response. He hypothesized that part appearance of the response may not have any effect on the probability of the same stimulus producing the same response ("beta hypothesis") and contended that the past appearance of response may decrease the frequency of future responses ("Gamma hypothesis") (cited in Ingham and Andrews, 1973).

Stuttering was one of the first disorders Dunlap used to test his negative practice hypotheses. Very few studies have reported the use of negative practice in stuttering therapy. Dunlap reported that negative practice improved some stutterers. But the first detailed results of the use of negative practice was reported by Fishman. He used negative practice on five adolescent and adult stutterers. Subjects were assessed before treatment on the number of words orally read or spoken for 10 minutes period. The words stammered were recorded and inserted into 10 sentences. This procedure was continued, with new sentences being added from time to time. The result indicated 60 per cent improvement in stuttering (cited in Ingham and Andrews, 1973).

Case (1960) used negative practice on 30 stutterers who's mean age was 24 years. The sample consisted of five subjects who were described as speech blockers. One aim of this study was to compare the effect of negative practice on this group and 25 who were not speech blockers. It was also decided to assess the effect of "positive adjustment techniques" separately or in conjunction with negative practice. Case used Dunlap's procedure along with a faradic punishment shock whenever there was a mistake in the attempt to stutter involuntarily. The result indicated that the speech blockers worsened under negative practice. Therefore their treatment was changed to a form of directive counselling. The result indicated that 10 of the patients were "cured" and 15 showed improvement.

With the exception of the two sketchy accounts of therapy by Fishman and Case, there has been little exploration of the therapeutic potential of negative practice (Ingham & Andrews 1973).

SHADOWING

Cherry and Sayers popularized the technique in a report on speech masking experiments. Essentially, shadowing involves two speakers. The first speaker reads or speaks spontaneously from or about material not available to second speaker. The second speaker attempts to repeat what the first person says, usually one to two words behind. The type of condition involved in the technique of shadowing suggests for the model learning type of underlying psychological mechanism. Here the stutterer has to initiate or shadow the style of therapist (cited in Ingham and Andrews, 1973). According to Ingham and Andrews (1973) a few studies have demonstrated that shadowing can reduce or eliminate stuttering. They also reported that shadowing seems to require a combination with other techniques in order to be effective. Application of shadowing has been limited as compared to other techniques.

Walton and Mather (1963) reported treatment of a subject by combination of shadowing, systematic desensitization and relaxation. They reported that, after six months of treatment, the subject was not completely stutter-free,

although the improvement was considerable. A more positive report resulted from work with 48 stutterers who received a mixture of shadowing and anxiety reduction (Kelham & McHale, 1966). The writers achieved an overall success with approximately 74 per cent of the clients, noting that lower age and number of sessions seemed to be correlated positively with fluency.

Kondas (1967) used a combination of "exercises in relaxed breathing" followed by clinic and home exercises in shadowing for 19 children and one adult stutterer. In the first two sessions, therapy centered on correct breathing habits; shadowing was introduced in the third session, followed as soon as feasible by daily practice assignment at home. Four children, after ten to fifteen shadowing sessions, were switched to desensitization procedures. The results showed that 70 per cent of the cases were successfully treated by the shadowing techniques and subsidiary procedures. But after a follow-up period, which lasted from three to five years, the figure of 70 per cent dropped to 58.8 per cent. This method of evaluating out come is commendable, but, unfortunately, in this study it mainly rested on anecdotal reports (Ingham & Andrews, 1973). In a latter report, Kondas and Pukacova (1977) reported significant improvement in speech fluency in 20 subjects who practised repeated reading during shadowing condition. This reported improvement was based on pre, post and two month

Sergeant (1961) sounded a discouraging note in reporting that at 60dB loudness and 102-SPM rate, the intelligibility scores for second (Shadowing) speakers only averaged 68 per cent. With extensive practice some subjects could reach 80 per cent intelligibility. Even the study by Ost, Gotestan and Melin (1976) found no significant improvement with shadowing technique. Ost, Gotestan and Lennert treated five stutterers by shadowing method for 3 months. The result did not indicate any significant difference between pre and post treatment percentage of non fluencies in speech, though there was a significant increase in word per minute rate during post treatment reading tests.

Ingham and Andrews (1973), after reviewing behaviour therapy techniques on stuttering, state that shadowing should be combined with other procedures in effectively treating stutterers.

MASKING

This techniques depends on a method of controlled presentation of noise which is designed to prevent the stutterers from hearing part or all of his speech. In therapy, masking has been applied as a punishment or aversive stimulus, contingent on the occurrence of stuttering. A few attempts have been made to study this effect by designing portable masking noise generators for use in stuttering therapy. The stutterer wears the unit in the manner of a

binaural hearing aid and turns it on during speaking conditions. Several studies have shown that the frequency of stuttering decreases when stutterers speak in the presence of noise (Adams & Moore, 1972; Conture & Brayton 1975; Ingham 1981; Maraist & Hutton, 1957; Perkins & Curlee 1969; Sutton & Chase, 1961; Webster & Dorman, 1970).

Cherry and Sayers (cited in Ingham and Andrews, 1973) reported virtually complete elimination of stuttering under condition of bilateral masking with a tone of intensity that "approached pain level" but achieved complete masking of the subject's awareness of the sound of his own speech. Maraist and Hutton (1957) used masking on a group of 15 stutterers. The results indicated that the number of errors and time duration for reading the passages decreased as masking level increased from zero dB to 90dB.

Trotter and Lesch (1967) claimed to have found a 75 per cent lower frequency of stuttering as well as reduced severity. Perkins and Curlee (1969) reported clinical impression of short term use of portable unfiltered and filtered white noise masking units on three adult stutterers. Two subjects reported brief carry-over after three to five days with the unit. The other subjects stuttering become more severe after the unit was removed. Webster and Dorman (1970) employed four conditions in their studies:

1) Noise onset made contingent on phonation.
2) Noise cessation made contingent on phonation.

3) A continuous noise condition.

4) No-noise control condition.

The result of these experiments indicated that all noise conditions yielded significantly less stuttering than the no-noise control conditions.

MacCulloch, Eaton and Long (1970) reported that results of long term masking on eight subjects. These subjects underwent 23 weeks half-hour session of oral reading and conversation under 300Hz masking. All the subjects reduced their errors by 50 per cent in reading. Conture and Brayton (1975) reported that the presence of noise significantly reduced to total number of instances of disfluent behaviour in their seven stutterers.

Dewar, Dewar & Anthony (1976a) reported significant decrease in speech errors in 53 stutterers while wearing a unit "Edinburgh Masker". In reading automatic speech and picture description there was a 93 per cent to 95 per cent in stuttering frequency and a 40 per cent to 60 per cent reduction in the duration of spasm. In a very thorough study Dewar, Dewar, Austion & Brash, (1979) reported the result of using a portable masking with 195 stutterers. The clients first were started with a inclinic masker to establish the best loudness and frequency range upto 500Hz. After practice in trying not to talk louder than the machine, using the

throat microphone, the clients were switched to the portable unit. Result shows that 82 per cent reported "considerable" to "great" benefits, and 18 per cent reported slight" benefits. Ingham (1981) reported on using the Edinburgh unit with four stutterers. One client exhibited almost 100 per cent reduction, two clients had marginal or temporary reduction on either reading or open speech and the fourth person was helped on spontaneous speech. Ingham noted that no reduction in stuttering was associated with a reduction in rate.

Overall review of the afore stated studies indicated that, although many studies have been reported using masking on stutterers, no study reported on long-term effect/ maintenance of therapeutic effect of masking. Hegde (1985) states that even if it becomes established that the effect of masking noise does not diminish over time for those subject who show reliable reductions of stuttering, the procedure may not be acceptable to many stutterers if they have to wear the unit indefinitely (P.159).

DAF AND PROLONGED SPEECH

Prolongation of sounds to control spasms or to induce fluency is involved in a number of therapy techniques. Methods such as rate control through DAF, continuous phonation, singing and others promote or require prolongation of speech sounds.

Some theoriticians have heralded the use of Delayed Auditory Feedback (DAF) procedures as one of the most promising development in the field of stuttering therapy. The effects of DAF, when a person speaks, are impressive. The auditory monitoring process is disrupted, with significant effects on speech output. Lee (1951) noted that delays of 100 to 150 milliseconds resulted in disruption changes in rate, rhythm, and other speech aspects so that a speaker displayed blockages, prolongations, repetitions and other nonfluent speech behaviour. A prolonged speech pattern is developed from the DAF procedure. The stutterer, through DAF, comes to speak or read in an unusually slow rate, prolonging each syllable. As the stutterer reaches fluency, the prolongation of the syllables is decreased. The instructions given to the client in prolongation technique are "speak or read very slowly, prolonging on each syllable. Do not halt after a syllable or word, continue to prolong until the sentence is finished. Small pauses should appear only in between the sentences".

General uses of DAF with stutterers have been varied, and early credit is hard to assign. Adamczyk used it as primary therapy with 15 stutterers, over a period of 3 months, at 250msec. He reported great improvement in 13 of the cases. Goldiamond has reported to have successfully created 48 subject aged 8 to 56 years. But these preliminary reports have not been followed by a long-term assessment of the speech behaviour of these subject (cited in Ham, 1986).

Webster and Lubker (1968) reported the use of continuous, rather than response contingent, DAF with 14 subjects. All showed marked improvement in the laboratory. Webster (1970) treated subjects in the laboratory and all showed a low number of words stuttered compared with pretreatment frequency. In Webster's variation the subjects were simply instructed to use a slow speech rate (30-35 words per minute) with smooth transition between speech sounds within words. Subsequently speech rate gradually increased to between 80 and 100 words per minute in a later paper.

Curlee and Perkins (1969) reported another variation on the Goldiamond procedure with conversational rate control therapy. Curlee and Perkins reported preliminary results on 15.adolescents and adult stutterers, showed stuttering to have decreased from 75 per cent to 95 per cent in outside situations. Watts (1971) reported on the brief use of DAF to instate the prolonged speech pattern in 8 subjects and subsequent practice without DAF assistance for 10 two hour sessions of conversation in a small group setting. It was evident from the reported statement, that most subjects were fluent throughout the treatment but did not generalize satisfactorily beyond the clinic nor proved stable over time.

Webster (1974) reported a current programme which originally relied on continuous DAF to produce fluency now relies on the techniques of gentle initiation of phonation on

how to produce unvoiced consonants and how to slightly increase the duration of most speech sounds. Subjects were instructed to practice between clinic session to aid transfer and achieve speech rate of between 100 to 120 words per minute. Twenty subjects, who completed this three week programme were followed up for approximately two years. Nineteen of the twenty subjects reported that their speech had improved.

Curlee and Perkins (1973) published a DAF based method of therapy called conversational rate control therapy. It considered Goldiamond's earlier work and also included aspects of time out techniques, along with reciprocal inhibition methods. This therapy actually is a combination of rate reduction prolongation, easy onset, continuous phonation and other factors. Curlee and Perkins reported a 75 per cent to 95 per cent decrease in frequency of stuttering with less severe residual stuttering. N=27 adolescent and adult stutterers and 90 hours treatment programme.

Perkins, Rudas, Johnson, Michael & Curlee, (1974) presented a long-term comparative data on two treatment programmes. In method I, conversational rate control was used for shaping fluency and DAF was used to obtain fluency at slow rates (N=27). In method II, the rate control was used to facilitate normal management of the breath stream, phrasing, and prosody as well as fluency (N=17). The results indicate

that both groups showed significant reduction in the percentage of syllables stuttered. Seventy percent of both groups had reduced their stuttering by 85 per cent. It was reported the 30 percent of group I and 53 per cent of groups II maintained improvement 6 months after treatment.

Another prolonged speech programme, which has held primely to the classical behavioural approach, was developed by Ryan and Van Kirk. Ryan and Van Kirk (1974) reported the results of their programme on 50 stutterers. Their therapy uses simple replicable criteria for progress through treatment (oral reading, monologue and conversational speech). DAF was employed to produce the initial fluent speech and later, this fluency was systematically generalized to different settings, with regular clinical checks on the subjects speech at decreasing intervals over two years. Dramatic decreases in stuttering frequency and the achievement of normal speech rates have been reported both immediately after treatment and in long term.

Schwartz and Webster (1977) applied "deintensified" version of Webster's (1974) programme for 3 months, instead of 3 weeks, on 8 subjects who were followed up at least for 45 days after treatment. The results indicate reduced dysfluency in oral reading and conversation. The follow up result indicated that only one subject was identified as stutter-free in both the conversational and oral reading.

Howie, Tanner and Andrews (1981) gave intensive treatment programme for 36 adults for a period of 45 days. Their programme consisted of prolongation technique, gradual shaping of speech rate to normal and systematic transfer of skills acquired in the clinic to real life situation. Results indicated that immediately after the intensive treatment, stuttering was virtually eliminated and speech rate and attitudes towards communication, were normalized. Follow up after 12-18 month, showed overall improvement in most subjects. Some deterioration in fluency from immediate post-intensive treatment levels had occurred in 40 per cent of the subjects.

Andrews, Craig & Feyer, (1983) reported about Prince Henry Hospital Programme. This programme represents the cumulative development of treating some 50 adults stutterers each year since 1971. The Prince Henry Programme grew out of the original Andrews-Ingham programme and is still based on systematic acquisition and generalization of a prolonged speech pattern. It still involves treatment of groups of six stutterers during three weeks of intensive treatment for 12 hours daily.

The speech pattern taught is labeled smooth motion speech. The characteristics of this pattern are gentle onset of phonation, continuous airflow, continuous movement of articulators throughout each utterance, soft contacts, and extension of vowel and consonant duration. The training employs instruction and modelling (not DAF) for establishing

the normal speech rate. At each step the client must display zero stuttering correct speech rate (within 20 SPM of target), and a specified minimum number of syllables spoken, all within the 45 minute rating session. The original token reward system has been abandoned, but self evaluation training has been incorporated to the programme.

At the end of intensive treatment, clients who are stuttering on an average of 14 per cent syllable per second (SS) and speaking at 140 syllable per minute (SPM), demonstrate virtually zero stuttering and speech rate within normal range (Howie, Tanner & Andrews, 1981). Follow up report indicates dramatical reduction in stuttering. Clients treated before 1978 were achieving means of 3.9 per cent SS and 207 SPM a year after treatment, but those treated in a more recent modification of the programme show lower means of 1 to 2 per cent SS (Andrews & Craig, 1982).

Ingham and Lewis (1978) state that "It is difficult to make only general statements about recent applications of prolonged speech within behavioural approaches to stuttering therapy. . . . . In view of the widespread use of prolonged speech in stuttering therapy there is still a surprising absence of data on its long term effects on the general speech behaviour of subject ... the procedure ... in its various forms is probably one of the most wide spread stuttering therapy techniques" (P.134-135).

AIRFLOW THERAPIES

Schwartz (1976) suggested that stuttering basically is a strong ill-timed contraction of the posterior cricoarytenoid muscle (PCA) as a result of subglottal air pressure stimulus. He concluded that there is an airway dilation reflex (ADR) along the length of the respiratory passage. In stuttering there is an inappropriate reflex response to stress where the ADR triggers a strong adduction response (laryngospasm). These stress reactions depend on seven categories of anxiety or stress stimuli-situation, sound and word, authority figures, uncertainty, physical factors, external influence, and rapid rate.

Schwartz recommended five days of work (eight hours per day). In therapy, the client is asked to emit a prolonged, relaxed, audible sigh (passive sigh). This is produced immediately following inhalation so that there is no intervening set or transition period between inhalation and exhalation. Then the client, midway in the passive sigh, "release" a one syllable word without any interruption, change in tension, or other alteration in the passive ongoing flow of air. Articulators are not present and should move into position during the airflow. The number of one syllable words is increased progressively on each breath and then turned into sentences. He stated that 84 per cent of 185 stutterers who had enrolled for air flow therapy programme, were completely symptom free in all situation within a week and 83 per cent were symptom free even after a year.

Lee (1976) applied Schwartz's air flow system to thirty one adult stutterers for recommended forty hour, intensive period. It was reported that 90 per cent of stutterers were symptom free in a wide variety of structured, stress inducing situations.

Andrews and Tanner (1982) applied Lee's modification of Schwartz's therapy wherein eight hour sessions were conducted on three consecutive days, and on the eighth and thirtieth days. Their results demonstrated a significant treatment effect for all subjects by the fourth day, but relapse was evident at 30 days, and at the end of 12 months, all subjects had relapsed to essentially the same level of stuttering as prior to treatment.

Azrin and Nunn (1974) considered stuttering "not as a specific speech problem but as one type of nervous habit". They state that stuttering is a habitual disorder of the initiation and maintenance of airflow, and should be eliminated if the stutterer emits speech behaviours that are incompatible with these air flow anomalies. Azrin and his colleagues (Azrin & Nunn 1974, Azrin, Nunn & Frantz 1979), trained stutterers to control a wide range of aspects of airflow. Smooth breathing, exhalation prior to speech, blending words into the exhalation pattern, continued exhalation after the last sound of the utterance, pausing at natural juncturing points, and smooth inhalation during the prespeech pause, as well as formulation of general speech content were used.

Azrin and Nunn (1974) reported a program with fourteen stutterers. In one two hour session, stutterers were brought through an intensive sequence. The new breathing pattern started with reading, where the client was to pause, relax and breath after every word. Desensitization was attempted through symbolic rehearsal and visualization of unpleasant situations, while attempting relaxation. After a single 2 hour session of training, they reported that stuttering decreased by 94 per cent on the first day after the treatment. The stuttering increased slightly but was still reduced by 90 per cent on the second day. Eight of the 14 stutterers showed 98 per cent decrease in stuttering at 4 months follow up. Azrin and Nunn (1974) stated that the treatment, requiring a great deal of effort from and motivation by the client, was effective either for severe or for mild stutterers.

Azrin, Nunn and Frantz (1979) compared regulated breathing procedures with abbreviated desensitization on reported stuttering episodes. They put 21 subjects under regulated breathing procedures and 17 under abbreviated desensitization procedure. Several general behavioural procedures were also used including relaxation training, self correction for errors, social support, daily home practice, and response awareness, which are components of the general habit reversal procedures for diverse habit. They reported that the regulated breathing method reduced the reported

stuttering episodes by 94 per cent on the first day after training and by 97 per cent during fourth week and the 3 months follow up. The control procedure reduced reported stuttering only slightly (about 10 per cent). The results indicate substantial effectiveness of the regulated breathing method for reducing reported stuttering episodes in every day speech as compared with an alternative treatment of equal duration.

Falkowski, Guilford and Sandier (1982) evaluated the effectiveness of a modified version of air flow therapy on two adult stutterers. Results indicated marked improvement in both subjects' speech. The reading task was maintained at follow up 10 weeks later. For spontaneous speech, results were generally weaker and less durable.

Ladouceur, Bourdreau and Theberge (1981) evaluated the difference between awareness training and regulated breathing method in modification of stuttering. Sixteen stutterers were randomly assigned to 1 of 2 groups, awareness training plus regulated breathing method or regulated breathing method only. Awareness training significantly reduced stuttering compared to control procedure. But the most significant improvement appeared after the introduction of the regulated breathing method. A month's follow up indicated that the frequency of stuttering was significantly less than during baseline and the level of dysfluency was around 5 per cent.

It is evident, that application of airflow techniques can reduce stuttering dramatically in the short term. These may be more useful, if combined with other procedures.

ANXIETY REDUCTION

Some clinicians regard anxiety as a causative agent and prominent factor in the origin and maintenance of stuttering. Therapy should be directed, therefore, at the anxiety first and secondly at the stuttering as a malleable result of emotion (Sheehan 1975). Other clinicians regard anxiety as a significant contributory factor in stuttering and they structure therapy to deal specifically with the speech anxiety and behaviours (Van Riper, 1973). The third group of clinicians feel that anxiety is a response to stuttering development and that reduction or elimination of the dysfluency will result in the removal of any anxiety syndrome (Ryan, 1974).

The anxiety reduction procedures (e.g.,Systematic desensitization (SD), Assertion training) are thus suggested for the treatment of stuttering, based on the theory that anxiety is the basis of stuttering behaviour. Wolpe (1958) has devised a procedure called systematic desensitization based on the mechanism of reciprocal inhibition. According to Wolpe (1954) if a response incompatible with anxiety can be made to occur in the presence of anxiety evoking stimuli, it will weaken the bond between these stimuli and the anxiety responses. In clinical practice, the two most common

competing responses used to inhibit the anxiety of stutterers have been assertive behaviour and relaxation.

Lanyon (1969) trained one mild stutterer in Jacobson's relaxation procedure, then subjected to systematic desensitization to a situation in a 'fear hierarchy'. After 14 weeks of this therapy he reports a 56 per cent reduction of 'nonfluency' and decreased spontaneous speech rate after therapy.

Aten and Burgraff (cited in Ingham and Andrews, 1973) reported almost complete fluency in one subject after 14 months therapy from an estimated pretreatment rate of 22.5 per cent words stuttered. For 6 other subjects they report a reduction from 18.5 per cent to 9 per cent words stuttered over a six months period. Wolpe (1969) reported to have trained a stutter to relax and to undergo a desensitization hierarchy focused about humiliation (in addition to training in rhythmic syllable timed speech). results indicated decrease in fear of humiliation situation and 90-95 per cent improvement in speech.

Webster (1970) reported the results of S.D. on 4 stutterers. Results showed that two subjects reached zero stuttering level and others improved markedly. Adams (1972) reported the treatment of 12 subjects by reciprocal inhibition of feared speech situations. After an average of 28 weeks in therapy, subjects and their families reported

that about half of these situations were no longer associated with stuttering. Five subjects reported to be fluent in all the fear situations. Fried (1972) reported a case of an adult, severe stutterers, treated by systematic desensitization. After 42 sessions of systematic desensitization, he became able to speak fluently. Tyre, Maisto, and Companik (1973) reported a case study of a 23 years old stutterer with whom systematic desensitization was used for treating his stuttering. The stuttering decreased significantly during, after, and six months after treatment.

Gray and England (1972) reported the effectiveness of systematic desensitization on 15 stutterers. During the therapy, fluency and anxiety levels were monitored at several points. They noted that (1) anxiety reactions were reduced, (2) fluency failure was reduced on oral reading tasks, and (3) little correspondence appeared to exist between anxiety reduction and fluency improvement.

Boudreau and Jeffrey (1973) compared pre and post therapy assessment of 8 stutterers on systematic desensitization and 4 control subjects who received no treatment. They reported significant improvement in the treatment group, but not in the control group.

Burgraff (1974) reported the effect of S.D. on group of adult stutterers. These effects were compared with those obtained through the use of a traditional symptomatic therapy

approach (Van Riper, 1973) with another group of adult stutterers. The pre and post therapy assessment indicated significant difference on speech measures but no differences were noted in both the group of stutterers.

Weiner (1981) reported a case of 36 years old male stutterers who received speech therapy with systematic desensitization of abnormal emotional response to speaking situation. He was also taught techniques of vocal control for fluency. The results indicated improvement in speech, which, however, was not completely stutter free.

BIOFEEDBACK

Biofeedback as applied to stuttering is designated to reduce the stutterer anxiety and muscle tension with the assumption that relaxed stutterer can speak without stuttering. Hence biofeedback techniques have been used to train stutterers to minimize muscle tension associated with speaking. Majority of studies have used Electromyographic feedback in the treatment of stuttering (Guitar 1975; Hanna, Wilfing & McNeil, 1975; Lanyon, Barrington & Newman 1975).

Guitar (1975) provided an account of treatment in which auditory feedback of E.M.G. signals from chin was used. After training, the subject was simply instructed to "reduce muscle action potentials" without feedback. The results indicated that stuttering initially reduced in the clinic from around 17 per cent syllable stuttered to near zero, and

similar results were noted when the subject spoke over the telephone. Nine months later, the subject provided the tape recording of conversation and telephone calls which were reported to be stutter free and at normal speech rate.

Hanna, Wilfing and McNeil (1975) reported treating 19 years old stutterer with E.M.G. feedback. E.M.G. electrodes attached above the thyroid feed back a tone which increased in frequency as in accordance with the amplitude of the E.M.G. signal. It was explained to the subject that the tone reflected tension in his speech muscles. The subject was instructed to produce a low frequency tone as often as possible while describing 50 per cent reduction in stuttering.

Lanyon (1978) reported using E.M.G. feedback on four stutterers. Subjects were trained using biofeedback to reduce masseter muscle tension to a maximum of 5mv. Then masseter tension is reduced before and during utterance of increasing length, first in reading and then in spontaneous speech. Objective speech measures presented by Lanyon suggested that for some stutterers, these procedure may produce short and long term results comparable with the prolonged speech treatment, but data on long term effects are lacking.

Both systematic desensitization and biofeedback seemingly make sense in view of the impression that anxiety and tension are often associated with stuttered speech. But unfortunately the clinical application of these procedures has been neither extensive nor very encouraging (Hegde, (l985).

ASSERTIVE TRAINING

Anxiety is constrictive, inhibitory and as Salter (1949) has shown, assertive outgoing behaviour seems to reduce fear. Assertion training procedure is based on reciprocal inhibition principle (Wolpe, 1958). Only a few studies have been reported on assertion training in relation to stuttering.

Wolpe (1958) reported successful treatment of a stutterer through assertive training. The patients anxiety was deconditioned through training in assertive behaviour when faced with fear speaking situations.

Dalali and Sheehan (1974) reported a study, in which 24 stutterers were randomly distributed to one of the three treatment conditions. The first group received assertion training as advocated by Wolpe. The second group simply discussed their feelings about situations in which they regarded themselves as unassertive. The third group received parallel sessions with avoidance reduction therapy (Sheehan 1975). The results indicated no significant difference during the course of experiment in severity of stuttering as

measured by self ratings, clinician ratings, or frequency of stuttering during readings of standard passages. They concluded that assertion training added nothing to avoidance reduction therapy.

Balson (1976) reported a case of an adult stutterer, treated with relaxation training, assertive training with behavioural rehearsal and role play. He noted the complete elimination of symptoms in five sessions each lasting 15 minutes. No relapse was observed at a 6 month follow up.

Burns and Brady (1980) used assertive training as an adjunct to other treatments like behaviour rehearsal in a 28 years old stutterer. The subject showed improvements and was able to handle various situations effectively after treatment.

Schloss, Espin, Smith and Suffolk, (1987) evaluated the effectiveness of an assertiveness training during employment interview. Four young adult stutterers were trained on assertiveness programme that include instruction modeling, behaviour rehearsal, feedback, social reinforcement, and home work. Dependent variables included putting the employer at ease, correlative feedback for interrupting and acknowledging positive employer behaviours. Results indicated substantial increase in the target behaviour as well as improvement in subjective ratings of baseline and post training interview, and the post training decrease in the amount of stuttering.

These studies suggest that assertive training is effective in reducing speech related anxiety and in improving the rate of fluency.

THERAPEUTIC PACKAGES

The present trend in stuttering therapy has moved from individual therapy to combining several procedures into a therapeutic package. As our review so far suggests, exclusive use of a single technique is a less common practice and most treatment programmes include combination of several procedures or different components. Most therapies are a combination of different procedures and targets (Hegde 1985). A therapeutic package developed by Perkins and his colleagues illustrates this fact. After obtaining some disappointing results with psychotherapy, Perkins began to analyze and treat stuttering at the behavioural level. He has found the objective behavioural approach to be more effective in reducing stuttering than the subjective and indirect psychotherapeutic approaches (Perkins 1973a 1973b).

Perkins, Rudas, Johnson, Michael and Curlee, (1974) have published data on the effectiveness of their treatment programme. Two behavioural methods of treating stuttering in adults were tested for clinical effectiveness, efficiency and performance. In method I, conversational rate control was emphasized as the means of shaping fluency. Delayed auditory feedback (DAF) was used to obtain fluency at slow rate. In method II, the control rate was used to facilitate normal

management of the breath stream, phrasing and prosody as well as fluency. In method I, 23 males and 4 female were included and in method II, 14 males and 3 females were included. Results indicated that both method I and II were effective in improving fluency. Furthermore, 100 per cent of the clients in group II, but only 92.3 per cent in group I still showed improvement six months after treatment. Group I went from 16.32 per cent syllables stuttered before treatment to 2.64 at the end of treatment, but after six months, it increased to 8.44, where as group II showed improvement from 9.04 per cent syllables stuttered before treatment and then to 1.73 per cent six months after treatment. Only 53 per cent of the treated stutterers maintained relatively permanent fluency.

Martin and Haroldson (1979) exposed 20 adult stutterers to each of five experimental treatments, time-out, noise, DAF, "wrong", and metronome. In each session, subjects spoke for 20 minutes without treatment (base rate) followed by 30 minutes in one of the five experimental conditions. Percentage of stuttering decreased significantly in all conditions and stuttering duration reduced significantly in all but the noise condition.

Another therapeutic package whose predominant feature is regulated breathing method is proposed by Azrin and Nunn (1974). They considered stuttering "not as a specific speech problem but as one type of nervous habits". The regulated breathing components involves inconvenience review, awareness

training, anticipation awareness, relaxation training incompatible activities, corrective training, preventive training, symbolic rehearsal, positive practice, social support, public display, and post treatment practice. The rationale is that stuttering is a habitual disorder of the initiation and maintenance of airflow, and should be eliminated if the stutterer emits speech behaviours that are incompatible with these airflow anomalies. The treatment is brief with one or two sessions, each of 2 to 3 hours. They reported that stuttering decreased by 94 per cent after the first day of treatment. Eight of the 14 stutterers showed 98 per cent decrease in stuttering at 4 months follow up. The results are based on clients self recorded stuttering episodes.

Azrin, Nunn and Frantz (1979) treated 38 stutterers 21 with regulated breathing components and 17 with abbreviated desensitization. Several general behavioural procedure were also used, including relaxation training, self-correction of errors, social support, daily home practice, and response awareness, which are components of the general habit reversal procedures for diverse habits. The regulated breathing method reduced the reported stuttering episodes by 94 per cent on the I day after training and by 97 per cent during fourth week and the three month follow up. On the other hand, the control procedure reduced reported stuttering only slightly

(about 10 per cent). The results indicate substantial effectiveness of the regulated breathing method for reducing reported stuttering episodes in every day speech as compared with an alternative treatment of equal duration.

Williamson, Epstein and Coburn (1981) used regulated breathing procedure on several characteristics of the speech of an adult stutterer. The treatment sessions were of approximately 45-60 minute duration, once or twice per week. Regulated breathing procedure was applied on following situations. (1) Reading aloud from current periodicals. (2) Therapist interviewing the subject regarding variety of different topics. (3) Role played talking in social situations. (4) Speaking over telephone or intercom. E.M.G., recordings were also taken during the sessions. The results indicate that the rate of dysfluency was reduced to 0.10 with a mean of 0.036 across the four conditions. Mean rate of subject speech was found to be 33.20 words per minute (WPM), with only 0.02 disfluencies WPM.

Jones (1981) applied regulated breathing procedure with combination of relaxation and biofeedback on a severe stutterer. The programme was for a sessions with 2 hours duration of each. The pretherapy assessment showed the percentage of stuttering for free speech to be 43.8 and for reading to be 39.4. Report indicate reduction of stuttering to 5.25 per cent for free speech and 3.2 per cent in reading.

Saint-Laurent and Ladouceur (1987) studied the effectiveness of (1) massed versus distributed practice of regulated breathing, and (2) the presence versus the absence of a maintenance programme. The study evaluated a multidimensional behaviour treatment for stutterers. The study groups consisted of 27 men and 13 women of age ranged from 18yrs to 50yrs. The results showed that stutterers treated by regulated breathing improved more than the Placebo group in terms of percentage of stuttered syllables and speech rate. Results indicated after 24 hours of therapy, a 50.3 per cent decrease in stuttering, whereas at the 10 months followup the decrease was at 47 per cent.

Hasbrouck and Lowry (1989) evaluated an intensive stuttering treatment programme on 24 adult stutterers (23 male and one female age ranged from 19 to 38 years). The treatment package consisted of graded airflow, tension relaxation, and E.M.G. feedback. The discriminative control procedure was used to facilitate the transfer and maintenance of fluency following treatment. The results of this study demonstrated that application of combination of treatment procedure could be effective in reducing stuttering and maintaining fluency. All 24 subjects met the criterion of $\leq$ 1 per cent stuttered words by the end of treatment and 70 per cent remained at or below 1 per cent stuttered words in 1 to 42 months follow up period.

Ladouceur, Caron and Caron (1989) evaluated multi-dimensional treatment package on nine stutterers (seven male and two females), of age ranged from 19 to 37 years (mean=24 years). The package programme included awareness training, regulated breathing, cognitive restructuring and relapse prevention. Results indicated that mild to moderate stutterers attained clinically significant results (less than three per cent SS) after 25, sessions and none of the severe stutterers attained clinical criteria of less than three per cent SS but each improved to some extent.

Poppen, Nunn, and Hook (1977) applied a variety of treatments in serial order to a 22 years old male with severe stuttering. The treatments included metronome pacing, reading a play, signaled consequences for stuttering, reading scripts of conversation, behind the ear metronome pacing, in-viva desensitization and regulated breathing. Frequency of stuttering was monitored in all therapy situations; breathing and other physiological functions were also monitored. All procedures while in effect, reduced stuttering rates below those in free conversation. In-viva desensitization reduced stuttering in subsequent free conversation in the office but did not generalize to real life speaking situations. Regulated breathing produced an immediate drop in stuttering to "normal" levels, generalized to all speaking situations, and was maintained at an 8 month follow up.

Andrews, Howie, Doszao and Guitar (1982) evaluated three stutterers under fifteen conditions including talking and writing, singing, choral reading, shadowing, arm swinging, syllable timed speech dialect, talking to an animal, two conditions of talking alone, relaxation, masking, slow rate, response contingent stimuli, and a combination of prolongation and DAF. They reported that all the conditions were responded to individually at times, but all generally reduced stuttering significantly.

Ladouceur, Cote, Lebland and Bouchard (1982) evaluated the effectiveness of regulated breathing method and awareness training on 12 stutterers, with age ranging from 17-74 years. Three stutterers received regulated breathing training for two 90 minute sessions as described in Azrin and Nunn (1974). It was hypothesized that increasing a subject's awareness of his stuttering before treatment would lead to better maintenance of therapeutic gains, and the result of this study partially supported this hypothesis.

STUDIES CARRIED OUT IN INDIA

There are few studies about the treatment of stuttering carried out in India. From the available literature, it has been noticed that the research on stuttering has been started around 1968.

Upadhyaya, Moudgil and Murthy (1968) carried out a study on four stutterers, with age ranging from 10 to 25 years.

They used masking noise in which the noise was presented contingently on repetition, addition, and omission of a part of a word or words. The result indicated that the average number of errors decreased in the subsequent sessions. Only one subject was completely free from stuttering after 20 sessions.

Mahananda (1970) used aversive noise technique on 19 years old adult stutterer. Aversive noise was presented contingently, for 60 sessions, each lasting for 25 minutes. Report indicated decrease in stuttering. At the time of termination of therapy, the patient reported 70 per cent improvement in his speech. Follow up after seven months showed that the patient had maintained the improvement.

Hegde (1971) investigated the short and long term effects of response contingent aversive noise on stuttering. Eight stutterers participated in two experimental and two control sessions in the short term study. The experiment was conducted in two days, with two sessions on each day, with each session lasting for 25 minutes. The subject received contingent aversive noise of about 124dB. In the second group, five stutterer received aversive noise for three months (long term). Report indicated that eight stutterers, who received short term therapy, stuttered significantly less under aversive noise condition, whereas, the five stutterers who received aversive noise therapy for three months did not show any significant change in their stuttering behaviour.

Hegde (1971) reported the effects of response contingent shock on stuttering. The subjects were five male stutterers with a mean age of 19.6 years. All the subjects participated in four experimental sessions, two shock and two control conditions. The results revealed that all the subjects stuttered more under the shock condition than the control condition.

Vishwanath (1972) evaluated the effect of punishment on five stutterers and found a decrease in selected responses. repetition of sounds and syllables when punished either decreased or were unaffected.

Manohar, Jayram, Rangasayee and Narendran (1973) reported that prolongation therapy showed greater improvement compared to shadowing. They carried out correspondence therapy programme for 406 stutterers. The cases were divided into two groups. Group A consisted of 119 cases, who did not come to the Institute but needed help, and group B, consisted of 287 cases, who came to the Institute for help but could not stay to receive therapy. Shadowing or prolongation technique was recommended. In both the groups, 63.95 percent of the cases reported improvement, and prolongation technique yielded better results compared to shadowing. They report that the prolongation technique was more effective with severe stutterers, whereas shadowing was more effective with mild and moderate stutterers.

Vijayalakshmi (1973) reported the response of eight stutterers on the fluency aspect of three verbal stimuli "good", "no" and "Zehu" (non-sense word). Three experimental sessions were conducted for the three verbal stimuli for each subject, each stimulus presented in only one session. The results indicated that five subjects showed a decrease in stuttering for all the three stimuli while the other three subjects showed an increase in stuttering for one or more of the stimuli. It indicates that the stutterer responded differently to the same treatment, hence there is a need to classify the stutterers into different groups.

Raj (1974) reported the results of response contingent shock on five adult male stutterers of age ranging from 20-25 years. Three base rates were taken for each subject. The three base rates were: (1) the frequency of stuttered responses while reading/spontaneous speech, (2) the frequency of stuttered response while reading/spontaneous speech with electrodes attached but no shock, and (3) the frequency of stuttered responses while reading, after therapy. The results indicated that three subjects showed clear improvement, one case showed decrease in stuttering in the 5th session, and one case dropped out in the middle without giving any reason.

Lal, Latte and Raj (1976) reported a single case study. A 23 years old male stutterer was treated with systematic desensitization. Ten sessions of systematic desensitization was tried, each lasting about 30 minutes. In the beginning,

speech fluency appeared to be restricted to therapy sessions only, but with increasing sessions of therapy generalization took place to outside situations. The case showed improvement after 20 sessions of therapy, and reported 75 per cent improvement in his speech and interpersonal communication . with others out side the clinic.

Srinivas (1982) evaluated the effect of highlighting of fluency in five adult stutterers. The results indicated decrease in the frequency of stuttering and an increase in the fluency and syllable output. Nandur (1982) reported the effect of noise on rate of speech and frequency of stuttering in four male stutterers in the age range of 17 to 23 years. Subjects were asked to read different passages, under two conditions: (1) in the absence of noise, and (2) in the presence of 90dB noise. The results showed reduction of stuttering under binaural masking conditions.

Ojha and Bettagere (1982) treated six adult male stutterers with group psychotherapy. The therapeutic techniques used were relaxation exercises combined with discussion on patients feelings, and attitude towards stuttering and related psychological problems. The therapy program lasted one and half hours twice a week for six months. The results indicated that two stutterers became fluent and three showed marked improvement but others did not continue the treatment. They reported that the group psychotherapy helped in expression of interpersonal

difficulties, feelings, and resolution of conflicts. Their attitude towards stuttering and speaking situation also changed for the better.

The preceding review has shown that personality of stutterers has been widely studied and the studies have been generally equivocal in relating stuttering to various traits of personality. Stutterers seem to exhibit introverted neurotic tendencies more than nonstutterers. There have been attempts to relate personality traits with out come of certain therapy methods which have remained inconclusive.

The therapeutic methods generally tried are of diverse types whose outcomes are not decisive in terms of their application and effectiveness on stutterers. Rarely there have been a combination of therapy methods tried on stutterers. However, there have been no specific outcomes of such studies for therapy. Further rarely researchers have used treatment procedures by taking into account the personality assets and deficiencies of stutterers. There have been few studies which have tried to correlate personality traits and the outcome of treatment methods. Thus there is a need to investigate the personality assets and deficiencies of stutterers and sort out techniques of treatment suitable to them.

CHAPTER - III

METHODOLOGY

The present study attempted to identify the personality correlates of stutterers and to evolve a package programme of treatment for stutterers.

Scheme of the study consisted of:

1) Assessment of stuttering and personality before therapy.
2) Therapeutic intervention procedures.
3) Assessment of stuttering and personality after therapy.

The pretherapy assessment procedures consisted of evaluation of various aspects of personality of the subject, analysis of the aggravating/antecedent stimuli and assessment of dysfluent behaviour of the subject. The following tests and measures were used to evaluate the various aspects of stuttering:

Personality - a) Eysenck Personality Inventory
b) Surface Trait Inventory

Social Anxiety - Revised Willoughby Questionnaire.

Self confidence - Self Confidence Inventory.

Locus of Control - Social Reaction Inventory.

Behavioural analysis - Case History and Clinical Interview.

Baseline assessment - Rate of Speech
Percentage of Stuttering.

Therapeutic intervention procedure consisted of:

1) Relaxation
2) Rhythmic Speech Technique

3) Prolongation technique

4) Air flow technique

5) Assertive Training

6) Generalization of fluency.

The post therapeutic evaluation procedure was undertaken in order to find the changes in various aspects of personality and stuttering behaviour.

Stuttering behaviour is not comparable easily in an objective way among stutterers. However, in this study the subjects chosen were of comparable age and education. As the subjects were expected to differ in their personality traits, it was difficult to consider then as a single group. It was also presumed that stuttering subjects would respond differently on any single therapeutic technique. For these reasons, it was considered to evaluate subjects individually and severally.

Single subject longitudinal studies are considered to have their own merits as compared to group studies because of their interest in behaviour of an individual. The single subject strategy does not involve group comparisons. As it has been aptly emphasized in Skinnerian methodology, if the ultimate aim of a psychologist is to control and modify the behaviour of an individual (as it is the case in studies involving therapeutic techniques), the data obtained from a

longitudinal study of a single suspect alone would be meaningful and the group means may often be misleading. Instead of comparing the mean performance of subjects as a group receiving treatment, the single subject strategy comprises the same individual's performances under treatment and no-treatment conditions. Therefore, in this study though several subjects were used, the results are not averaged across individuals. Each subject's results are analyzed separately. Hence this study was seen as collection of single subject studies.

SUBJECTS

Eighteen stutterers constituted the study. These stutterers had registered themselves for therapy at All India institute of Speech and Hearing, Mysore. A clinical interview was conducted in order to rule-out any apparent organic or mental illness. The following criteria were used in selecting the subjects for study.

1) The subjects must be above sixteen years of age.
2) Having minimum education of X grade.
3) Saving no apparent illness or organic involvement.

The age range of the subjects was 16 years to 29 years with a mean age of 22.09 years with S.D. of 2.89. Educational background varied from 12th grade to post graduate level. These stutterers were from different parts of the country and belonged to rural as well as urban areas and were conversant in English. Severity of stuttering ranged from moderate to severe stuttering.

MATERIALS

The materials used to evaluate personality and stuttering behaviour are described below. The behavioural analysis and determining the baseline of stuttering behaviour are also described.

Eysenck Personality Inventory (E.P.I.) (Eysenck and Eysenck 1964):

E.P.I, consists of 57 items. The inventory measures two important dimensions of personality, extraversion and neuroticism. The items in the test are carefully selected, so that they can be easily followed/understood by all the subjects. The lie scale has been used to eliminate subjects showing "desirability response set". The retest reliability of E.P.I. is 0.85, which is quite high.

Raj and Rao (1970) provided Indian norms of E.P.I. which were used in the present study (See Appendix-B).

The instructions were printed on the inventory. The subjects were asked to read the instructions carefully and to answer all the questions in the inventory. The doubts, if any, were clarified by the investigator. The subject had to put a cross in the circle under the column "YES" or "NO". care was taken to ensure that all questions were answered. Scoring was done as per the scoring key provided for the purpose.

SURFACE TRAIT INVENTORY (S.T.I.) (Sen and Raj 1978):

This inventory has 12 scales. Each scale consists of 15 items and the inventory has 180 items in total. Raj, in 1982, provided the normative data for S.T.I. for 348 males and 194 females with a mean age range of 31.67 ± 10.46 and 24.33 ± 7.27 respectively. The individual trait was classified into 3 areas; desirable, normal and undesirable. Normal zone consists of the Mean $\pm$ 1 S.D., for particular scale beyond which lies desirable and undesirable zone (See Appendix-B). He found that only eight scales, out of 12, have high validity. Only these eight scales were used in the present study (Sen & Raj, and Raj, cited in Singh, 1988). The scales were:

1) Activity
2) Cyclothymia
3) Depressive tendency
4) Emotional instability
5) Introversion
6) Feelings of inferiority
7) Psychosomatic disorders
8) Inter personal communication disorders.

In the S.T.I. the "YES" answer gets the score of 2, doubtful "?" gets 1, and "NO" answer gets 0 score. The full scale score is obtained by adding the points on each items, which provides a range of possible scores from 0 to 30, for each individual on each scale.

The instructions to the subjects were printed on the first sheet of the inventory. The subjects were asked to read the instructions carefully and were explained the method of answering. Subjects were required to mark their answer in a separate answer sheet provided to them. The subject's responses were rated on a 3 point rating scale, "YES" (usually or generally true), "NO" (not true or rarely true) and "?" (unsure). The subject had to answer every item, as specified in the instructions.

REVISED WILLOOGHBY QUESTIONNAIRE (WPS-R) (Wolpe, 1982):

WPS-R consists of 25 questions that are answered on a five point scale (0-4). About half of the questions yield information about common areas of neurotic reactivity, mainly interpersonal, and the other half indicate degree of general emotional sensitivity. Decrease in the scores has been found to correlate with patients improvement. This questionnaire estimated the status of social anxiety.

Instructions to the subject were provided in the questionnaire along with the rating scale. The subject has to encircle one number from 0-4, that describes him best.

The full scale score is obtained by adding one score of each item, which yields a range of possible scores from 0 to 100. Willoughby (1934) reported a mean score of 28.9 ± 14.

SELF CONFIDENCE INVENTORY (S.C.I.) (Basavanna, 1975):

S.C.I. measures the level of self-confidence among adolescents and adults. "Self-confidence refers to an individual's perceived ability to act effectively in a situation to overcome obstacles and to get things go alright" (Basavanna, 1975).

The S.C.I consists of 100 items. The answers are forced choice types, either true or false. The split half reliability for the inventory was found to be 0.94. Basavanna provided the norms, which had a mean of 38.85 with S.D. of 17.21. As per the norms, the lower the score the individual was rated as having higher self-confidence and higher the score the individual was rated as having low self-confidence (Appendix-B).

Instructions were printed on the inventory. The subjects were asked to read the instructions carefully and mark their answer on the answer sheet provided separately. The subjects had to encircle either "true" or "false" on the answer sheet. The answers were scored according to the key provided in the manual.

SOCIAL REACTION INVENTORY (S.R.I.) (Rotters, 1966):

S.R.I. was used to evaluate locus of control among subjects. This questionnaire consists of 29 items of forced choice type including five filler items. The subjects have to select one of the two alternatives for each item i.e., yes or no. The scoring was in the direction of externality. Score 12 and above indicates external locus of control.

The instructions were printed on the inventory. The subjects were asked to read the instructions carefully and to mark their answer on the answer sheet provided to them. The doubts if any were clarified by the investigator. Care was taken to ensure that all questions were answered. Scoring was done as per the scoring key provided for the purpose Appendix-B).

APPARATUS:

The apparatus used in the present study were an electronic metronome, a tape recorder, a stop-watch, a tally counter and reading materials.

Electronic metronome (Make, Mercury Cup Type, Ananda Agencies, Pune, India) provides beats at regular intervals. The range of the speed was from 40 to 210 beats per minute. The speed of the rhythmic beats could be varied. There was also visual presentation of the rhythm in the form of a small light bulb which would glow only on each beat.

A tape recorder (Make,National Panasonic RQ-2160 Japan) was used to record the speech sample of subjects, both in reading and in spontaneous speech. The recorded speech was analysed by the investigator and an observer. The ratings were used for checking inter-observer reliability estimate in addition to other factors. The hand tally counter was used to count the stuttering blocks and also to count the syllables during speech analysis.

BEHAVIOUR ANALYSIS

Behaviour analysis for each individual subject was carried out by the investigator. The behavioural analysis was done on the basis of subject's clinical case history and clinical interviews. Each subject was interviewed separately and information was collected regarding the possible antecedent stimuli which lead to stuttering, the factors which maintain or strengthen his stuttering and the precipitating factors.

BASELINE ASSESSMENT

After administering personality tests and behavioural analysis, baseline assessment of dysfluent behaviour of the subjects was taken up. Baseline assessment was carried out in the presence of one observer and the investigator. The observer was also a clinical psychologist. He was trained in assessing the dysfluent behaviour and counting the syllables. The assessment of dysfluent behaviour, during baseline sessions and immediately after treatment sessions, was carried out by the observer and the investigator independently.

Five baselines interms of rates of speech and stuttering blocks were taken for each subject. Tape recorder, stop-watch and hand tally counter were used during speech recording. speech was recorded for two minutes each during reading and spontaneous speech sessions. Simple reading material in English was used for reading. The spontaneous speech was

recorded for two minutes duration while the subject spoke extempore on any topic of his choice. There was a rest period of about two minutes between reading and spontaneous speech.

Assessment and therapy were done in a sound treated room which is generally used for behaviour therapy. The subject was seated across the table of the observer. The subject's speech was recorded on a cassette tape recorder. The instances of stuttering were recorded ontime as the subject read and spoke in all the three situations, i.e., pretherapy, during therapy and posttherapy sessions. The recorded speech was analysed separately by observers for rate of syllables read or spoken per minute (SPM). The analysis of recorded reading and speech samples was done immediately after each session to find out the rate of change in stuttering if any. This was done because the design of the study was such that the therapeutic method would have to be changed if there was no fluency achievement of 98 per cent within eight sessions of the use of a particular therapy technique.

THERAPEUTIC INTERVENTION

After completing the pre-treatment evaluation procedure the subjects underwent a series of therapeutic procedure in the following order.

1) Relaxation (P.M.R.)
2) Rhythmic Speech Technique (R.S.T.)
3) Prolongation Technique (P.T.)

4) Air-Flow Technique (A.F.T.)

5) Assertive Training (A.T.)

6) Generalization of Fluency (G.F.)

The above mentioned therapy methods are found to be useful in the clinical experience and also as reported in literature.

Most of the stutterers are found to have anxiety as one of their main problems associated with stuttering. They are also found to improve in their fluency, once their anxiety reduces. Relaxation therapy has been used in reducing anxiety in stutterers and for increasing fluency (Gray and England 1972, Lanyon, 1969, Weiner, 1981). Hence, relaxation therapy Progressive Muscular Relaxation) was selected as one of the therapy methods to try with the subjects in the study.

Rhythmic speech with metronome has been found to be a useful method in reducing disfluency (Brady, 1971, Herman and Brady, 1976; Ingham et.al., 1972; Silverman and Trotter 1973). Berman and Brady (1976) from their survey, reported that 57 percent of the respondent clinicians considered the metronome conditioned technique as a major advance in the treatment of stuttering. Ham (1986) writes that in comparing rhythm technique, especially metronome, to other fluency inducing methods, "it has been found that in many instances rhythm seems to provide very high level of fluency for stutterers".

Prolongation is a widely used method. Prolongation has been extensively used by several clinicians in the treatment of stuttering (Curlee and Perkins, 1969, 1973; Ryan and Van Kirk 1974; Webster and Lubker, 1968). Andrews, Guitar, Howie, (1980) have reported that prolongation is a better method compared to other techniques.

Air-Flow technique is found to be useful with many severe stutterers having hard contacts and difficulties in initiation of phonation (Andrews and Janner, 1982; Lee, 1976; Schwartz, 1976).

Assertive, out going behaviour seems to reduce fear and helps in increasing fluency with stutterers. Studies conducted by Balson, (1976), Burns and Brady, (1980) Dalali and Sheehan, (1974), Schloss, et.al., (1987) and Wolpe, (1958), suggested that assertive training is effective in reducing speech related anxiety and in improving the rate of speech.

The therapy methods mentioned earlier were selected on the basis of their effectiveness in improving the fluency. The techniques were used in the mentioned sequence, as there is no claim over any particular method being superior in improving fluency. The sequence of techniques viz., Progressive muscular relaxation, Rhythmic speech technique, Prolongation technique, Air-flow technique, and Assertive training was maintained throughout therapy. When the subject

did not show improvement in fluency upto 98 per cent within eight sessions under a particular technique, the therapy then shifted to the next technique. When the subject showed improvement in fluency progressively, the therapy using the particular technique was continued until the subject reached the 98 percent fluency criteria within eight sessions.

THERAPEUTIC PROCEDURE

Progressive muscular relaxation: The relaxation regimen employed closely followed Jacobson's (1938) progressive muscular relaxation. The procedure began with the systematic tension and relaxation of 16 muscle groups. Subjects received a total of eight sessions of relaxation training (Wittrock, Blanchard, and McCoy, 1988). Subjects were also instructed to maintain differential relaxation in daily life situations and were asked to practice the relaxation exercises atleast two times daily.

RHYTHMIC SPEECH TRAINING

Rhythmic speech training started after relaxation training for eight sessions. The procedure followed for rhythmic speech training was the procedure suggested by Brady (1971, 1976). The subjects were instructed and demonstrated to read and/or speak with metronome beats. In the beginning the speed was kept at 40 beats per minute (BPM) and the subject was asked to read one syllable per beat for five minutes and then to read one word per beat for five minutes.

The same procedure was followed for speaking with beats. The speed of the metronome was increased in steps of 5 or 10 beats per minute as the subject picked up the speed and fluency in reading or speaking with metronome.

In the second session of using metronome, the subjects were asked to read one syllable per beat starting with 40 beats per minute and raising the speed in steps of 5 or 10 BPM till 200 BPM. The same procedure was followed for speaking for 15 minute duration.

For third and subsequent sessions the procedure was changed from reading or speaking syllables or word per beat to reading or speaking two or three words per beat, starting 40 BPM to 150 BPM. The subject was trained to read or speak two or three words per beat depending upon the length of the word. Whenever the subject had difficulty in keeping pace with the speed of the metronome then immediately the speed of the metronome was reduced to the previous speed at which he was able to read or speak comfortably. The rhythmic speech training with metronome was carried out for a maximum of eight sessions. The subject was put to next therapeutic technique i.e., prolongation whenever the subject had not shown noticeable improvement within eight sessions or not reaching the 98 percent fluency criteria.

Each treatment session involving the use of metronome lasted for 45 minutes, including 20 minutes of reading and 20 minutes of speaking with a rest of 5 minutes to avoid fatigue.

PROLONGATION TECHNIQUE

Prolongation has been applied to increase the duration of vowels (and some consonants) within word boundaries or to function as a continuous phonation, where word boundaries are reduced or eliminated. The technique can be limited to the initial sounds of words or to all vowels in a word or include consonants as well.

In the present study, the subject was asked to prolong the first syllable of the word. If a plosive was involved, the client was asked to use a light contact on the phoneme and slide into a prolongation on the following vowel. On occasions where a plosive was followed by another consonant, the second consonant was treated as part of the first unit, with prolongation occuring on the following vowel.

The programme initially had the subject read for 20 minutes from a standard book, selected for the purpose, prolonging the fist syllable of every word. In the next 20 minutes, he was asked to speak on some topic with prolonging the first syllable of every word. The subject was told to practice speaking in daily life also.

AIRFLOW TECHNIQUE

In the present study, airflow therapy of Schwartz has been used. In the airflow procedure, subject was taught to release a short duration passive flow of air like a sigh (ah) through the vocal cord prior to the onset of phonation and to

maintain an uninterrupted flow of air throughout each utterance. The subject was asked to read for 20 minutes using this airflow/technique and next 20 minutes were spent for speaking with the same technique.

ASSERTIVE TRAINING (A.T.)

Assertive training began when the subjects attained clinical criteria of 98 percent fluency in speech behaviour. The assertive training in the clinic involved the technique such as behaviour rehearsal and modelling. The subjects were demonstrated about the words subjects use, volume, firmness, and emotional expressiveness of voice; eye contact and the appropriateness of accompanying gestures; and other bodily movements (Wolpe, 1982). The subject was asked to speak on some topic imagining an audience. The sequence was repeated again and again until the investigator was satisfied that the subjects utterances have been suitably reshaped.

In the second session, a small audience was introduced where each subject was asked to address the audience on some topic. It was repeated until the subject reported self-confidence in addressing audience. In the third session, a group discussion along with some members were arranged. In the fourth session a model interview was conducted. In the interview session, the subject was taught about the way to enter the interview hall and conduct himself and answer the questions confidently. The model interview was repeated until the investigator felt that the subject responded appropriately and his behaviour had been suitably reshaped.

GENERALIZATION OF FLUENCY:

The fluency generalization followed the assertive technique. The procedure followed for generalization of the achieved fluent speech to a natural setup was similar to the procedure used by Perkins (1973). Perkins suggests three strategies for generalizing fluent speech to every day life. The first step is to train the stutterers in the use of the acquired fluent speech that will permit recovery of normal speech when it is disrupted for whatever reason. The second step is to extend to daily life the stimulus control of normal speech that has been shaped; this is to minimize the possibility of its disruption. The third is to facilitate changes in living patterns that will permit the stutterers to accommodate normal speech into his life permanently.

The goal was accomplished by changing conditions so gradually that the stutterer was able to maintain the feeling, that speaking is easy. A normal fluency generalization record was maintained by the subject in order to record the situations that he used for generalization (See Appendix-C).

Step-I: The speaking situation was changed by having one or two persons who were strangers to the subject in the treatment room. The subject was asked to speak to them and was encouraged to join the group discussion. This also helped the stutterers to develop self confidence.

Step-2: This step involved planning a series of real situations where the subject was required to speak. These situations were arranged in this following order.

1) Speaking with one person outside the clinical situation. The subjects were asked to speak to one person at a time for 5 to 10 minutes outside the clinical situation and then to gradually increase the number of such meetings and persons.

2) Speaking to more than one person outside the clinic. Subjects were asked to meet two or three persons and to speak with them, starting with simple questions, like enquiring about the time; time of the bus' arrival, etc. The subject was also asked to make telephonic conservations; first using intercom speaking to therapists and then with others in the clinic.

3) Speaking to fellow travellers - The subject was asked to travel in a bus and speak to their fellow travellers.

4) Enquiring at Railway stations and bus-stand - The subject was asked to go to city railway station and bus stand, make enquiries about the train timings, availability of seats etc. He was asked to speak to people in the waiting rooms, platforms etc.

5) Shopping - The subject was asked to go for shopping and speak to shopkeeper, fruit venders and hawkers.

6) Meeting (with senior officials) people with authority - The subject was asked to meet some senior officials in banks, college principals, police officers and speak to them.

All the subjects were asked to record their speech behaviour in a "normal speech generalization record" and this was used by the investigator to note the generalization of fluency in each subject.

ASSESSMENT OF STUTTERING AND PERSONALITY AFTER THERAPY

Soon after the therapeutic programme was completed all the subjects were assessed for the personality changes if any by repeating all the personality tests that were administered before therapy. The speech behaviour was also recorded of all the therapy sessions were over in the presence of an observer. The speech was analysed for the number of syllable and stuttering instances.

FOLLOW UP

In order to evaluate long-term therapeutic gains, the subjects were followed up from one month to six months after treatment. The subjects were informed that their speech will be assessed at the end of one month, three months, and again at the end of six months after the therapy. In the follow up session the subjects' speech was recorded in the presence of the observer and the investigator as it was done in the baseline sessions. The speech samples were recorded during reading and speaking for a duration of two minutes. The recorded speech was analysed for the number of syllables and stuttering instances.

STATISTICAL ANALYSIS

Descriptive and analytical statistics were obtained on the data. To determine the significance of difference between pretherapy and posttherapy scores of each subjects on personality tests chi-square test was used.

In order to find out the significance of difference between the pretherapy and posttherapy performance of subjects as a group on personality tests Repeated measures of ANOVA was applied.

INTER-OBSERVER RELIABILITY

Inter-observer reliability was determined by using percentage of agreement between two observers. The dysfluent behaviour during baseline sessions and immediately after treatment sessions were analysed independently by the observers. Inter-observer reliability for stuttering count was ranging from 80-100 with a mean of 87.77 percent and for syllable count was ranging from 80-100 with a mean of 85.56 percent. Hence, the measurement was considered reliable.

CHAPTER - IV

RESULTS

This chapter presents the results of pre and post therapy personality assessments and also the stuttering behaviour of eighteen cases before and after therapy individually. Behaviour analysis of these cases has been carried out by using clinical interview and case history. The stuttering behavior is not comparable in an objective way among stutterers. As the subjects differed in their personality traits, it was difficult to consider them as a single group. Therefore single case design has been used in this study. The data has been statistically treated using Chi-sqaure and Repeated Measures of Analysis of Variance (ANOVA).

In general all the subjects showed difference in pre and post therapy personality assessment. Further they also showed considerable improvement using the sequence of therapy techniques as a package i.e., Relaxation, Rhythmic Speech Technique, Prolongation technique, Air flow technique, Assertive Training and Generalization of fluency. Details of results of each subject is presented. The results have been discussed with reference to clinical utility.

CASE-1

C.S., a twenty four years old male was from an urban area with M.Tech degree. The case reported that the stuttering started when he was four years of age and the problem was mild during early years but became severe during his college days. According to C.S. the stimuli aggravating stuttering were: starting conversation with strangers and speaking to a group of people. He stuttered more when excited, or at the time of making enquires. He also reported that he got tensed in such situations and tried to avoid speaking. He felt sad about his problem and developed inferiority feelings.

The speech of the case consisted of repetitions, prolongations and also audible exhalations preceding utterances. Secondary characters like, pursing of the lips, tensing the neck muscles and tapping of the right hand were observed.

The response pattern of C.S. to treatment is depicted in figure.1. The figure indicates that C.S. did not show significant improvement with progressive muscular relaxation P.M.R.) therapy even after eight sessions (20% SS in reading and 14.36% SS in spontaneous speech). However, C.S. reported some improvement after the P.M.R. technique. As no significant change in speech was noticed even after eight sessions of P.M.R., C.S. was tried on rhythmic speech techniques (R.S.T.). The figure shows that stuttering reduced

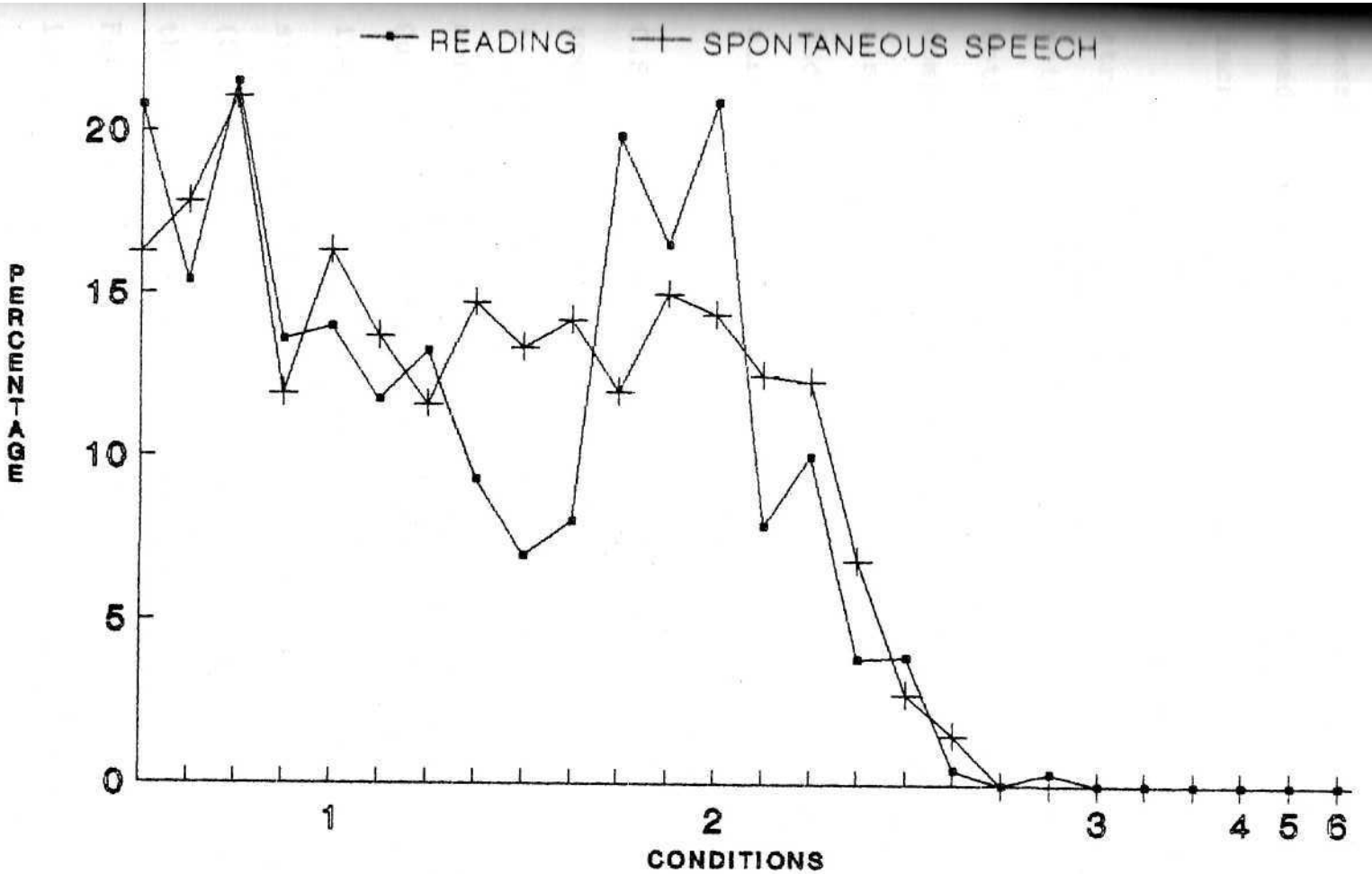

FIGURE 1: Percentage of Stuttering of C.S. Conditions: 1.Base Line, 2.Progressive Muscular Relaxation, 3.Rhythmic Speech, 4.Assertive Technique, 5.After Therapy, 6.Follow-up. The points between conditions on X-axis indicate number of sessions.

gradually, from third session of R.S.T. and at the eighth session of R.S.T., his dysfluencies reduced to 1% SS in reading and 0% SS in spontaneous speech. The rate of speech increased compared to that of base rate.

As C.S. reported lack of confidence in meeting the strangers, the Assertive training was administered. As noticed in figure his speech fluency continued to be good both in reading and spontaneous speech and stuttering reduced completely both in reading and spontaneous speech. It can also be seen from figure that the generalization procedure had helped him to maintain his fluency outside the clinic also.

Table 1 and Figure 2 present a comparison of scores of C.S. on psychological tests, before and after therapy. His scores on self confidence inventory (S.C.I.) reduced from 41 to 11, (X2 = 17.31, P=0.00) indicating that he had gained more confidence. Similarly his scores on Revised Willoughby Questionnaire (WPS-R) indicated reduction in social anxiety i.e., the scores reduced from 52 to 18 (X2=16.51, P=0.00). A significant reduction in scores on Social Reaction Inventory (S.R.I.) was also noticed (X2=7.14, P=0.00), which indicated that he was more internally controlled. On Eysenck Personality Inventory (E.P.I.) the score on extraversion improved from 8 to 15. Though this difference was not significant (X2=2.13, P=0.14), the changes were clinically important, as it indicated that C.S. had moved from introversion to extraversion.

TABLE 1

Presents the scores of C.S. on Pyschological tests before and after therapy.

Test	Before Therapy	After Therapy	X2 value	P value
1) S.C.I.	41	11	17.31	0.0000 *
2) WPS-R	52	18	16.51	0.0000 *
3) S.R.I.	12	2	7.14	0.0075 *
4) E.P.I.:				
a) Neuroticism	10	6	1.00	0.3173
b) Extroversion	8	15	2.13	0.1441
5) S.T.I.:				
a) Activity	26	30	0.29	0.5930
b) Cyclothymia	14	18	0.50	0.4795
c) Depression	18	12	1.20	0.2723
d) Emotional Instability	12	2	7.14	0.0075 *
e) Introversion	22	8	6.53	0.0106 *
f) Feelingsof inferiority	8	10	0.22	0.6374
g) Psychosomatic disorders	0	0	-	-
h) Interpersonal Communication disorder	16	2	10.89	0.0010 *

* = Statistically significant

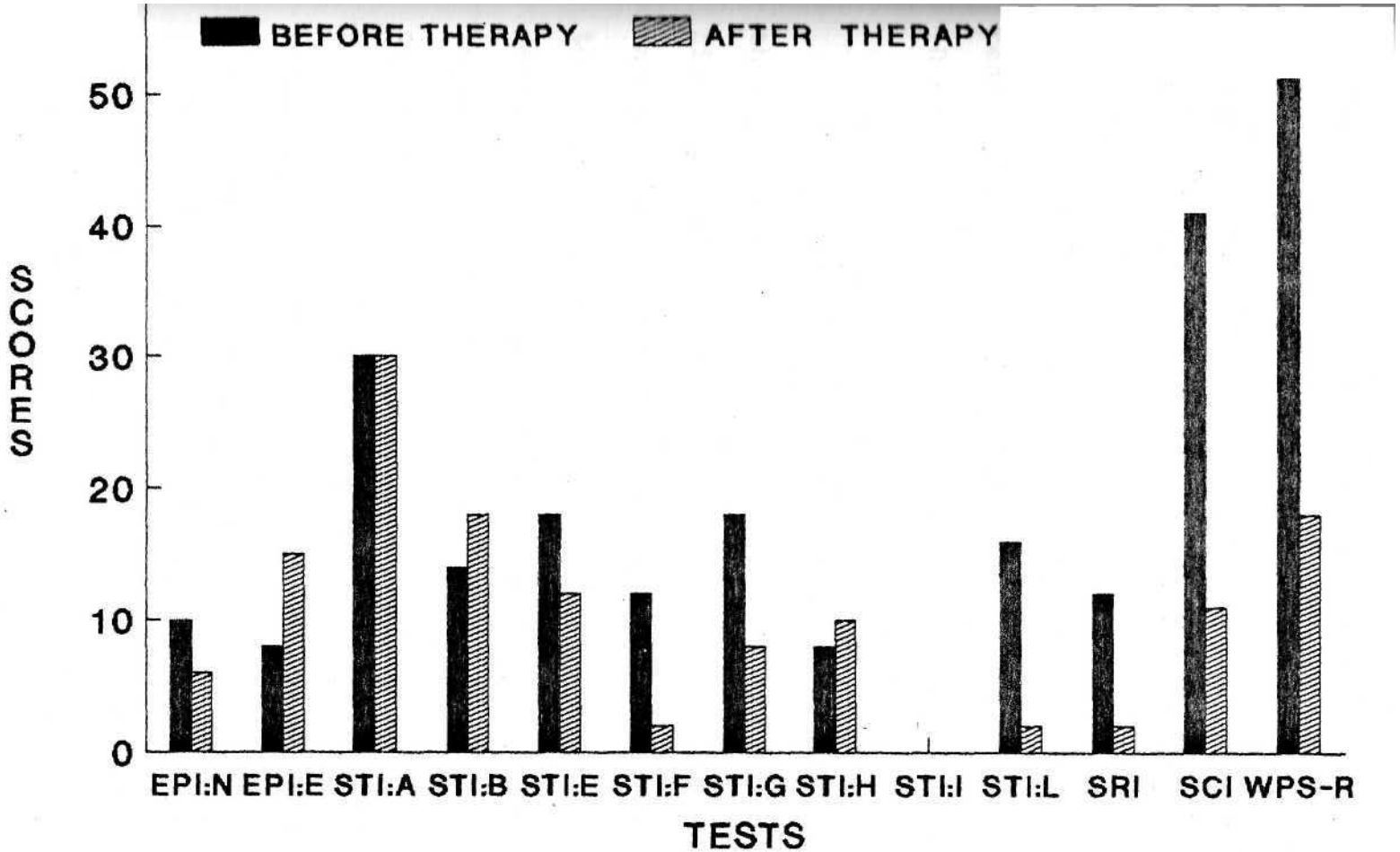

FIGURE 1: Personality scores of C.S. E.P.I.=Eysenck Personality Inventory, N=Neuroticism, E=Extraversion, S.T.I.=Surface Trait Inventory, A=Activity, B=Cyclothymia, E=Depression, F=Emotional instability, G=Introversion, H=Feeling of inferiority, I=Psychosomatic Disorders, L=Interpersonal Communication Disorders, S.C.I.=Self Confidence Inventory, S.R.I.=Social Reaction Inventory, WPS-R=Revised Willoughby Questionnaire.

Similarly no statistically significant change was seen in the scores on cyclothymia of Surface Trait Inventory (S.T.I.) which increased to 18 from 14 (X2=0.5, P=0.48) and on introversion of S.T.I., the score reduced from 22 to 8. This also suggested the improvement towards extraversion. The table shows a marked improvement on emotional instability and in interpersonal communication disorders. The scores reduced from 12 and 16 to 2 and 2 respectively (X2=7.14 and 10.89) which was statistically significant.

In general, the psychological test scores before therapy indicated that C.S. was an introverted person with high social anxiety, low self confidence and poor interpersonal communication. The scores on psychological tests after therapy indicated change to extraversion, reduction in social anxiety, improved self confidence, better internal locus of control and improved interpersonal communication. The perusal of Figure.1 shows that there was a change in the speech of C.S. with rhythmic speech and assertive techniques. Generalization of fluency procedures also helped him to increase his self confidence, improve interpersonal communication and maintain his fluency. The post therapy scores of personality tests also indicated positive changes in personality of C.S.

It was attempted to follow up C.S. at the end of first month, third month, and after six months. He did not turn up for first followup, but was available for second and third followups which indicated that there was no stuttering and his fluency was maintained.

CASE-2

R.V.S., a twenty years old male from an urban area with B.E., degree. He reported that the stuttering started when he was three years of age and the problem had increased from last two years. According to him the stuttering aggravating stimuli were: starting of conversation with strangers and speaking to elders. He stuttered more when excited or at the time of making enquires. He felt anxious, shy and tense when he stuttered. He tried to avoid speaking with strangers or to a group anticipating stuttering. He felt disgusted in life.

The speech of the case consisted of repetitions and prolongations. Stuttering was accompanied by hand movement, stamping the feet and tensing his facial muscles.

Figure.3 indicates that R.V.S. did not show significant improvement with P.M.R. therapy after eight sessions (7.11% SS in reading and 8.20% SS in spontaneous speech). The figure shows that stuttering reduced gradually to 0.34% in reading and to 0 in spontaneous speech by the eighth session of using R.S.T.

Since R.V.S. reported lack of confidence in meeting the stangers, he was put on Assertive training. His speech fluency continued to be good in both reading and spontaneous

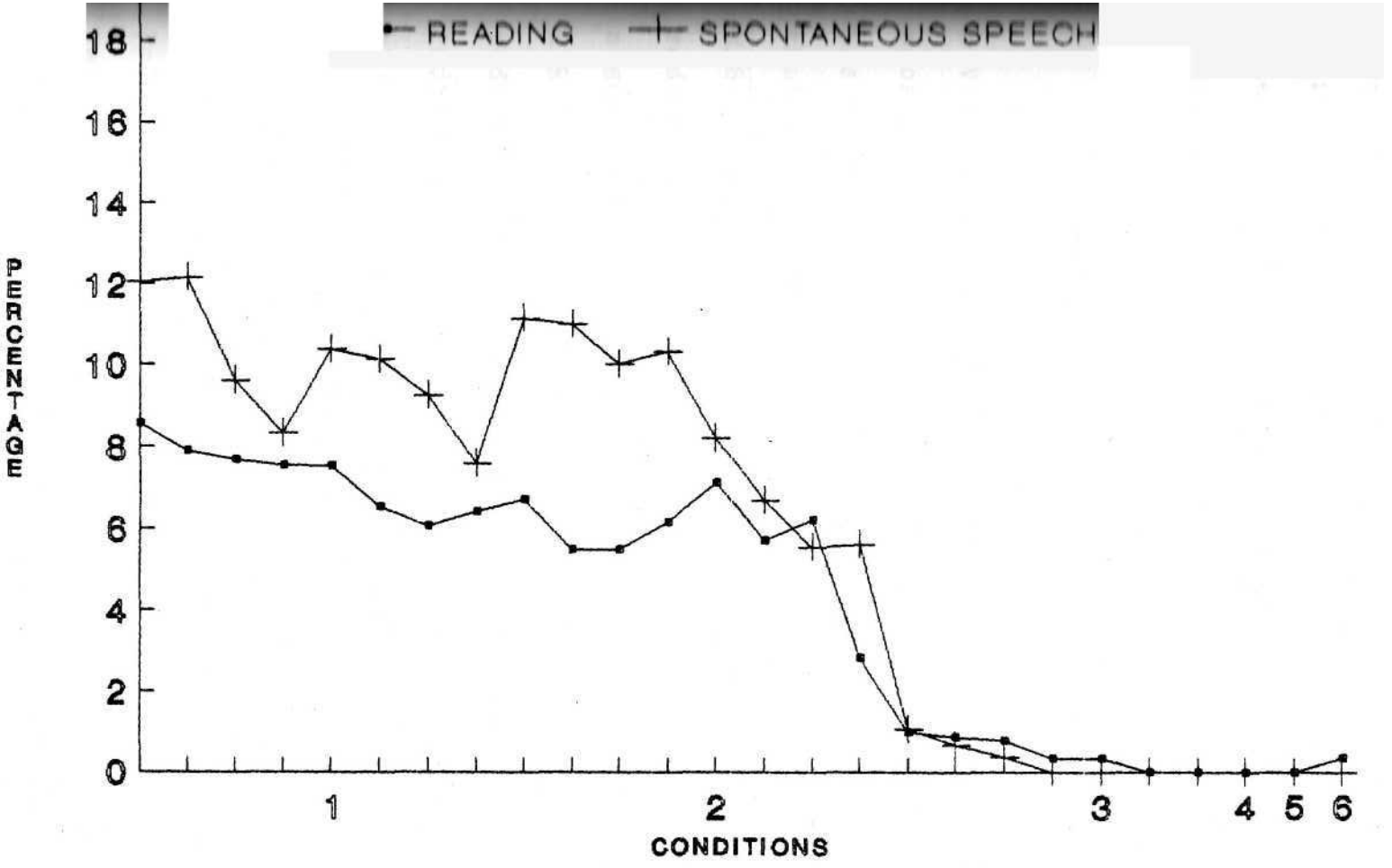

FIGURE 3: Percentage of Stuttering of R.V.S. Conditions: 1.Base Line, 2.Progressive Muscular Relaxation, 3.Rhythmic Speech, 4.Assertive Technique, 5.After Therapy, 6.Follow-up.
The points between conditions on X-axis indicate number of sessions.

speech and stuttering reduced completely. The figure also indicated that the generalization of fluency procedure had helped him to maintain his fluency outside the clinic. His rate of speech had increased when compared to his base rate i.e., 138 to 203 and 123 to 208 in reading and spontaneous speech respectively.

Table.2 and Figure.4 presents a comparison of scores of R.V.S. on psychological tests, before and after therapy. His scores on S.C.I. reduced from 63 to 33, and the difference was statistically significant (X2 = 9.37, P=0.00), indicating that he had gained more confidence. Similarly his score on WPS-R indicated reduction in social anxiety i.e., the scores reduced from 55 to 32 and the difference was statistically significant (X2=6.08, P=0.00). No significant change on S.R.I. was noticed (X2=1.80, P=0.18), however his score was reduced from 13 to 7 which was clinically important as it indicated that he was more internally controlled. On E.P.I. the score on extraversion improved, from 8 to 16 (X2=2.67, P=0.10) with reduced neuroticism scores from 19 to 7. No statistically significant change was seen in the score on cyclothymia of S.T.I. which increased to 24 from 14 (X2=2.63, P=0.10), but significant change was noticed on introversion scale. Figure.4 shows considerable improvement on emotional instability and feeling of inferiority i.e., the scores changed from 20 and 26 to 6 and 8 respectively (X2=7.57, P = 0.00 and 9.53; P = 0.00). His score on interpersonal

TABLE 2

Presents the scores of R.V.S. on Pyschological tests before and after therapy.

Test	Before Therapy	After Therapy	X2 value	P value
1) S.C.I.	63	33	9.37	0.0022 *
2) WPS-R	55	32	6.08	0.0137 *
3) S.R.I.	13	7	1.80	0.1797
4) E.P.I.:				
a) Neuroticisro	19	7	5.54	0.0186 *
b) Extroversion	8	16	2.67	0.1025 *
5) S.T.I.:				
a) Activity	24	28	0.31	0.5791
b) Cyclothymia	14	24	2.63	0.1048
c) Depression	26	12	5.16	0.0231 *
d) Emotional Instability	20	6	7.54	0.0060 *
e) Introversion	24	4	14.28	0.0002 *
f) Feelings of inferiority	26	8	9.53	0.0020 *
g) Psychosomatic disorders	6	6	1.00	0.1000 *
h) Interpersonal Communication disorder	28	6	14.23	0.0002 *

* = Statistically significant

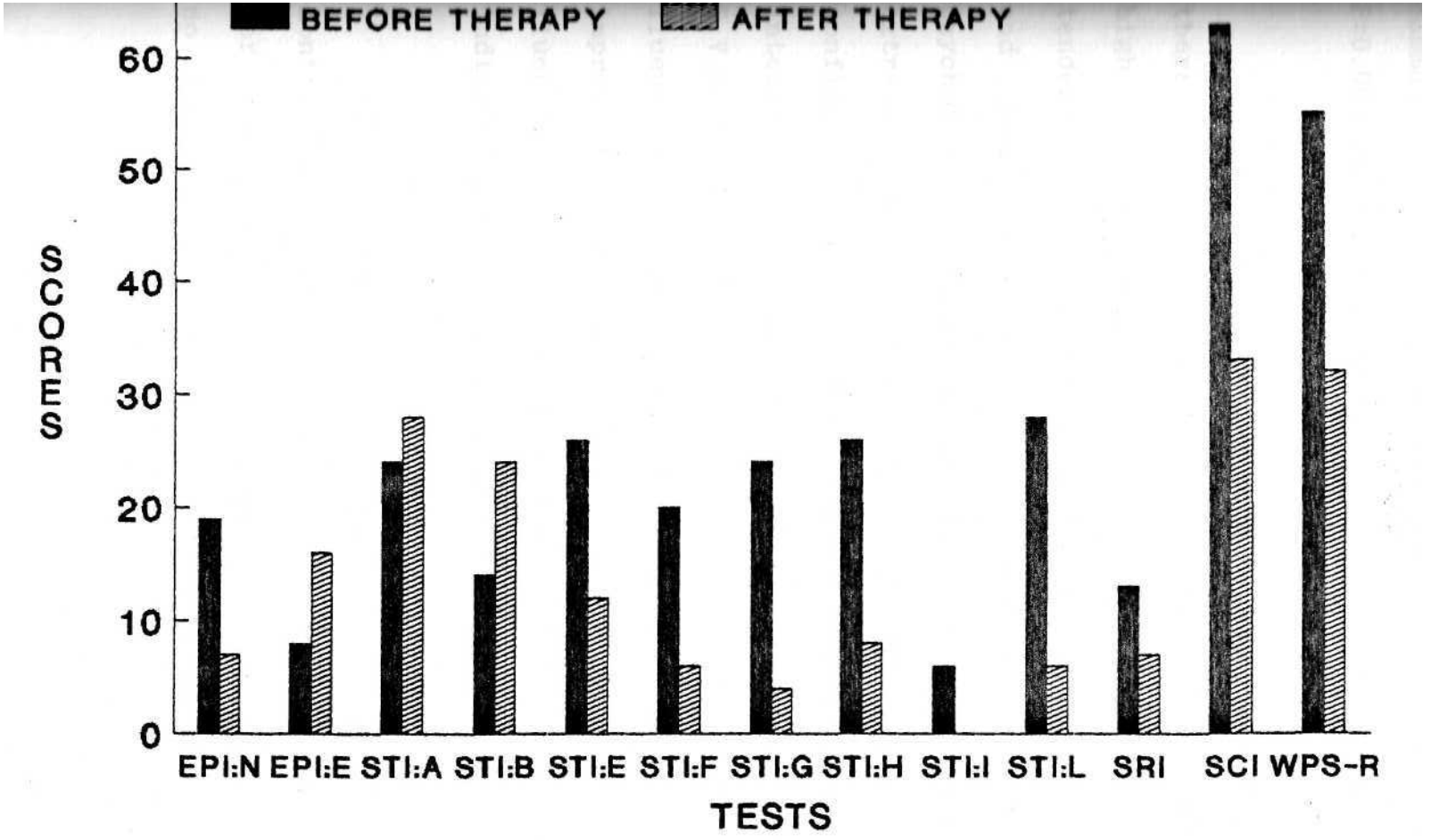

FIGURE 4: Personality scores of R.V.S. E.P.I.=Eysenck Personality Inventory, N=Neuroticism, E=Extraversion, S.T.I.=Surface Trait Inventory, A=Activity, B=Cyclothymia, E=Depression, F=Emotional instability, G=Introversion, H=Feeling of inferiority, I=Psychosomatic Disorders, L=Interpersonal Communication Disorders, S.C.I.=Self Confidence Inventory, S.R.I.=Social Reaction Inventory, WPS-R=Revised Willoughby Questionnaire.

communication disorders reduced to 6 from 28 ($X^2=14.23$, $p=0.00$) the difference being statistically significant.

In general, the psychological test scores before therapy indicated that R.V.S. was an introverted person with high social anxiety, low self confidence, depressive tendency, emotional instability, external locus of control and poor interpersonal communication. The scores on psychological tests after therapy indicated change to extraversion, reduction in social anxiety, improved self confidence, better internal locus of control and improved interpersonal communication. A change in the speech of P.V.S. with R.S.T., Assertive training, and Generalization of fluency procedure helped him to increase his self confidence, improve interpersonal communication and to maintain his fluency. The post therapy scores of personality tests also indicated positive changes in personality of R.V.S.

It was attempted to followup R.V.S. at the end of first month, third month, and after six month. He was available for second followup only which also indicated that there was no stuttering and his fluency was maintained.

CASE-3

A twenty years old male, D.P. was from an urban area with Diploma in Engineering. The case reported that the stuttering started, when he was five years of age and the problem increased from last five years. According to D.P. the stuttering aggravating stimuli were: starting conversation with strangers, buying tickets in the bus and speaking to teachers in the class room. The stuttering severity varied from person to person. He avoided speaking to others, anticipating stuttering. The speech of the case consisted of repetitions and prolongations.

The response pattern of D.P. to treatment is depicted in figure.5. The figure indicates that he had shown some improvement with P.M.R. therapy after eight sessions. His stuttering reduced gradually in reading and also in Spontaneous speech (0.27% SS in reading and 11.02% SS in spontaneous speech). The figure shows reduction in his stuttering with R.S.T. and at the eighth session of R.S.T., he had no dysfluencies either in reading or in spontaneous speech.

D.P. reported lack of confidence in meeting the strangers and teachers in the class room, hence Assertive training was administered. His stuttering reduced to 0 SS both in reading and spontaneous speech. Figure.5 also shows that the generalization procedure had helped him to maintain

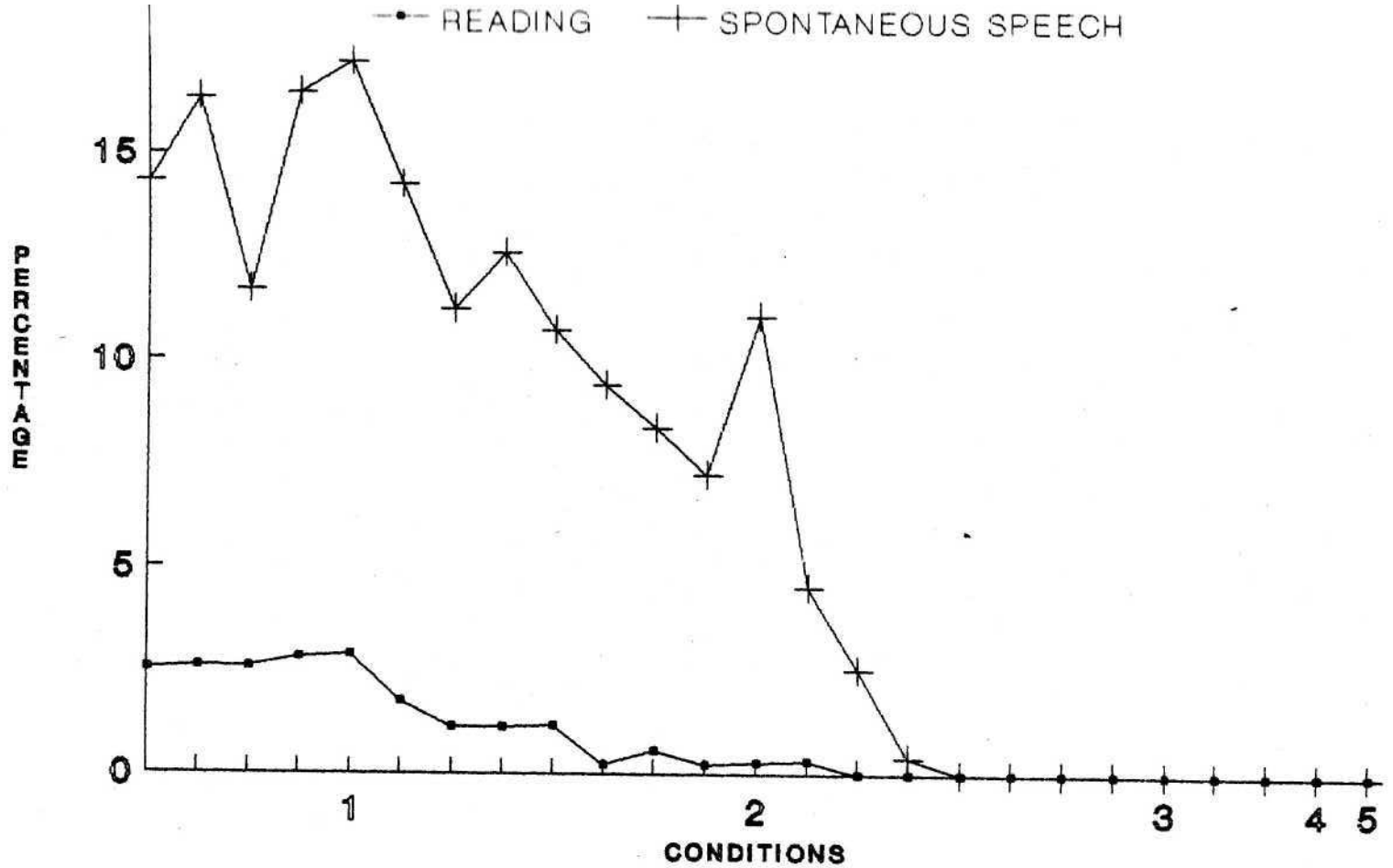

FIGURE 5: Percentage of Stuttering of D.P. Conditions: 1.Base Line, 2.Progressive Muscular Relaxation, 3.Rhythmic Speech, 4.Assertive Technique, 5.After Therapy.
The points between conditions on X-axis indicate number of sessions.

his fluency outside the clinic. His rate of speech after therapy had increased when compared to that of base rate.

Table.3 and Figure.6 present a comparison of scores of D.P. on psychological tests, before and after therapy. His score on WPS-R indicated reduction in social anxiety No significant improvement on S.R.I. was noticed (X2=0.03, P=0.86), his score remained almost the same i.e., 17 to 18 which indicated that he continued to be externally controlled. No change was noticed on E.P.I., the score on extraversion remained almost same i.e., 7 to 5, (X2=0.33, P=0.56). The score on neuroticism reduced. Though there was no significant change seen in the scores the reduction of score indicated that neuroticism was reduced which helped to maintain fluency. A statistically significant improvement was noticed on traits like depression (score changed from 24 to 10, X2=0.56, P=0.01), emotional instability (scores changed from 22 to 8, X2=6.53, P=0.01), feelings of inferiority (scores changed from 30 to 14, X2=5.82 P=0.01) and interpersonal communication disorders (score changed from 20 to 8, X2=5.14, P=0.02).

In general, the psychological test scores before therapy indicated that D.P. was an introverted person with high social anxiety, feeling of inferiority, depression, emotional instability and poor interpersonal communication.

TABLE 3

Presents the scores of D.P. on Pyschological tests before and after therapy.

Test	Before Therapy	After Therapy	X2 value	P value
1) S.C.I.	25	16	1.97	0.1599
2) WPS-R	72	8	51.20	0.0000 *
3) S.R.I.	17	18	0.03	0.8658
4) E.P.I.:				
a) Neuroticism	15	12	0.33	0.5637
b) Extroversion	7	5	0.33	0.5637
5) S.T.I.:				
a) Activity	14	26	3.60	0.0578
b) Cyclothymia	16	20	0.44	0.5050
c) Depression	24	10	5.76	0.0164 *
d) Emotional Instability	22	8	6.53	0.0106 *
e) Introversion	22	8	6.53	0.0106 *
f) Feelings of inferiority	30	14	5.82	0.0159 *
g) Psychosomatic disorders	4	0	4.00	0.0454 *
h) Interpersonal Communication disorder	20	6	5.14	0.0233 *

* = Statistically significant

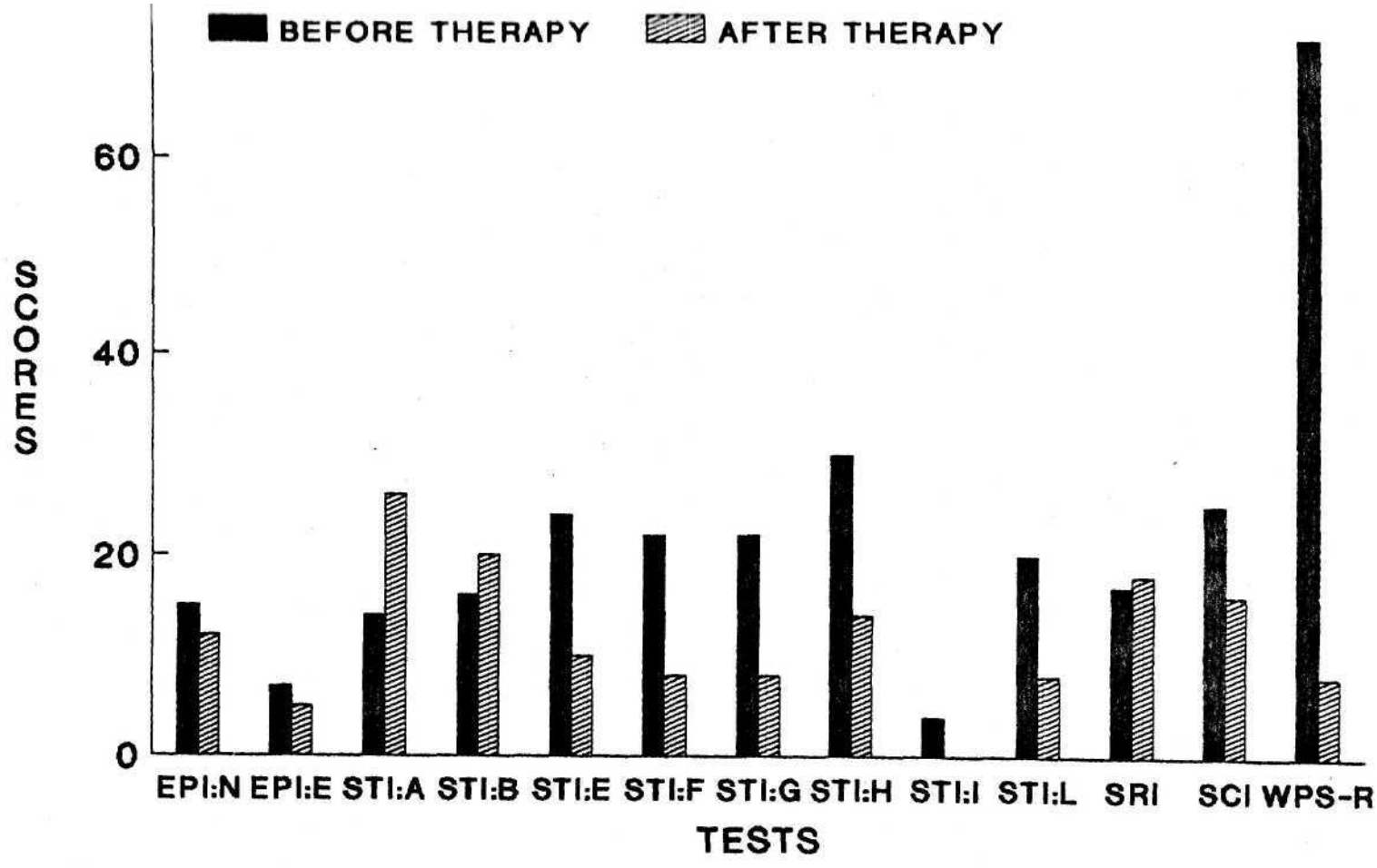

FIGURE 6: Personality scores of D.P. E.P.I.=Eysenck Personality Inventory, N=Neuroticism, E=Extraversion, S.T.I.=Surface Trait Inventory, A=Activity, B=Cyclothymia, E=Depression, F=Emotional instability, G=Introversion, H=Feeling of inferiority, I=Psychosomatic Disorders, L=Interpersonal Communication Disorders, S.C.I.=Self Confidence Inventory, S.R.I.=Social Reaction Inventory, WPS-R=Revised Willoughby Questionnaire.

The scores on psychological tests after therapy indicated reduction in social anxiety, improved self confidence and improved interpersonal communication. Figure.5 showed that P.M.R. brought some changes in the speech of D.P. and also reduced his social anxiety. Further, there was a change in the speech of D.P. with R.S.T. and assertion training. Generalization of fluency procedures also helped him to increase his self confidence, and improve interpersonal communication. The post therapy scores of personality tests also indicated positive changes in the personality of D.P.

It was attempted to followup D.P. at the end of first month, third month, and after six month. He was not available for followup sessions.

CASE-4

U.S.T., a twenty three years old male was from an urban area with Diploma in Engineering qualification. The case reported that the stuttering started, when he was eleven years of age. According to him the stuttering aggravating stimuli were: starting conversation with strangers and groups. He avoids speaking to others, anticipating stuttering. In such situation he experienced tension in the body, increased heart rate, tremors of limbs and sweating. He developed inferiority feelings, depression and had suicidal ideas.

The speech of the case consisted of repetitions and prolongations. The secondaries consisted of tension in the body, tremors of limbs and sweating.

The response pattern of U.S.T. to treatment is shown in Figure.7. Figure indicates that U.S.T. had shown some improvement with P.M.R. therapy after eight sessions. His lettering reduced gradually in reading and also in spontaneous speech. Stuttering reduced to 8.94% SS in reading and 9.87% SS in spontaneous speech. Figure.7 indicated a significant reduction in his stuttering with U.S.T. and at the eighth session he had no dysfluencies either in reading or in spontaneous speech.

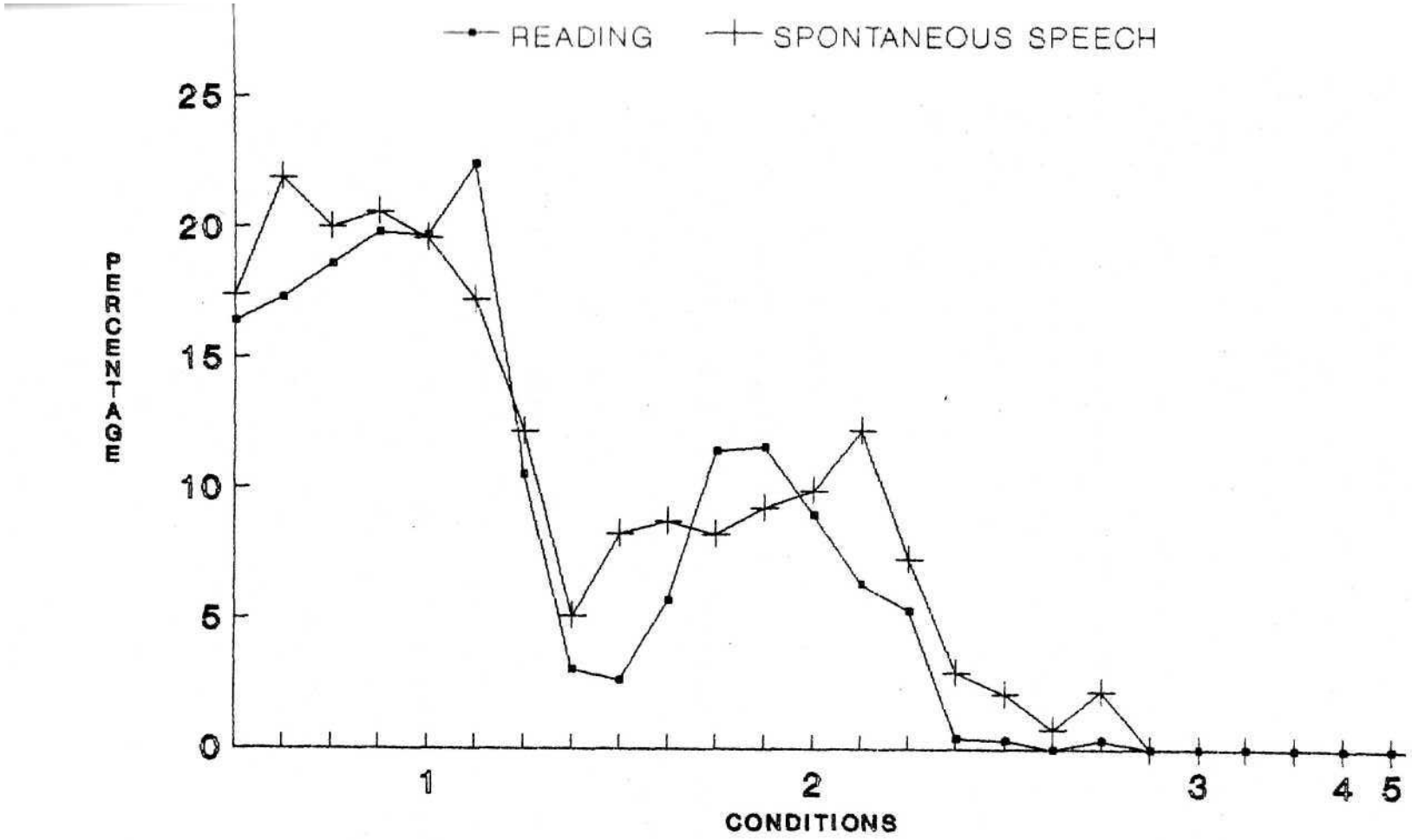

FIGURE 7: Percentage of Stuttering of U.S.T. Conditions: 1.Base Line, 2.Progressive Muscular Relaxation, 3.Rhythmic Speech, 4.Assertive Technique, 5.After Therapy.
The points between conditions on X-axis indicate number of sessions.

However, as U.S.T. reported lack of confidence in meeting the strangers and to the group, Assertive Training was administered. As noticed in Figure his speech fluency continued to be good in both reading and spontaneous speech. It can also be seen that the generalization of fluency procedure had helped him to maintain his fluency outside the clinic. His rate of speech had increased when compared to his base rate. After-therapy assessment of speech indicated that he was free from stuttering both in reading and spontaneous speech.

Table.4 and Figure.8 present a comparison of scores of U.S.T. on psychological tests, before and after therapy. His score on self confidence inventory reduced (X2 =22.23 P=0.00). as well as the scores on Revised Willoughby X2=5.06 P=0.01), This reduced score indicated improvement in his self confidence and also reduction in social anxiety. No significant improvement on Social Reaction Inventory was noticed indicating that he was still internally controlled. further change was noticed on E.P.I., the score on extraversion scale increased. Though the change was not statistically significant, this increased score on extraversion scale was clinically important. Statistically significant change was noticed on neuroticism score i.e., from 22 to 5 (X2=9.00, P=0.00). Further the score on cyclothymia of S.T.I. indicated that U.S.T. moved from

TABLE 4

Presents the scores of U.S.T. on Pyschological tests before and after therapy.

Test	Before Therapy	After Therapy	value	P value
1) S.C.I.	43	9	22.23	0.0000 *
2) WPS-R	43	23	6.06	0.0138 *
3) S.R.I.	10	11	0.05	0.8273
4) E.P.I.:				
a) Neuroticism	20	5	9.00	0.0027 *
b) Extroversion	9	13	0.73	0.3938
5) S.T.I.:				
a) Activity	20	22	0.09	0.7576
b) Cyclothymia	16	24	1.60	0.2059
c) Depression	20	4	10.67	0.0011 *
d) Emotional Instability	22	22	0.00	1.0000
e) Introversion	22	14	1.78	0.1824
f) Feelingsof inferiority	20	6	7.54	0.0060 *
g) Psychosomatic disorders	10	2	5.33	0.0209
h) Interpersonal Communication disorder	24	4	14.28	0.0002 *

* - Statistically significant

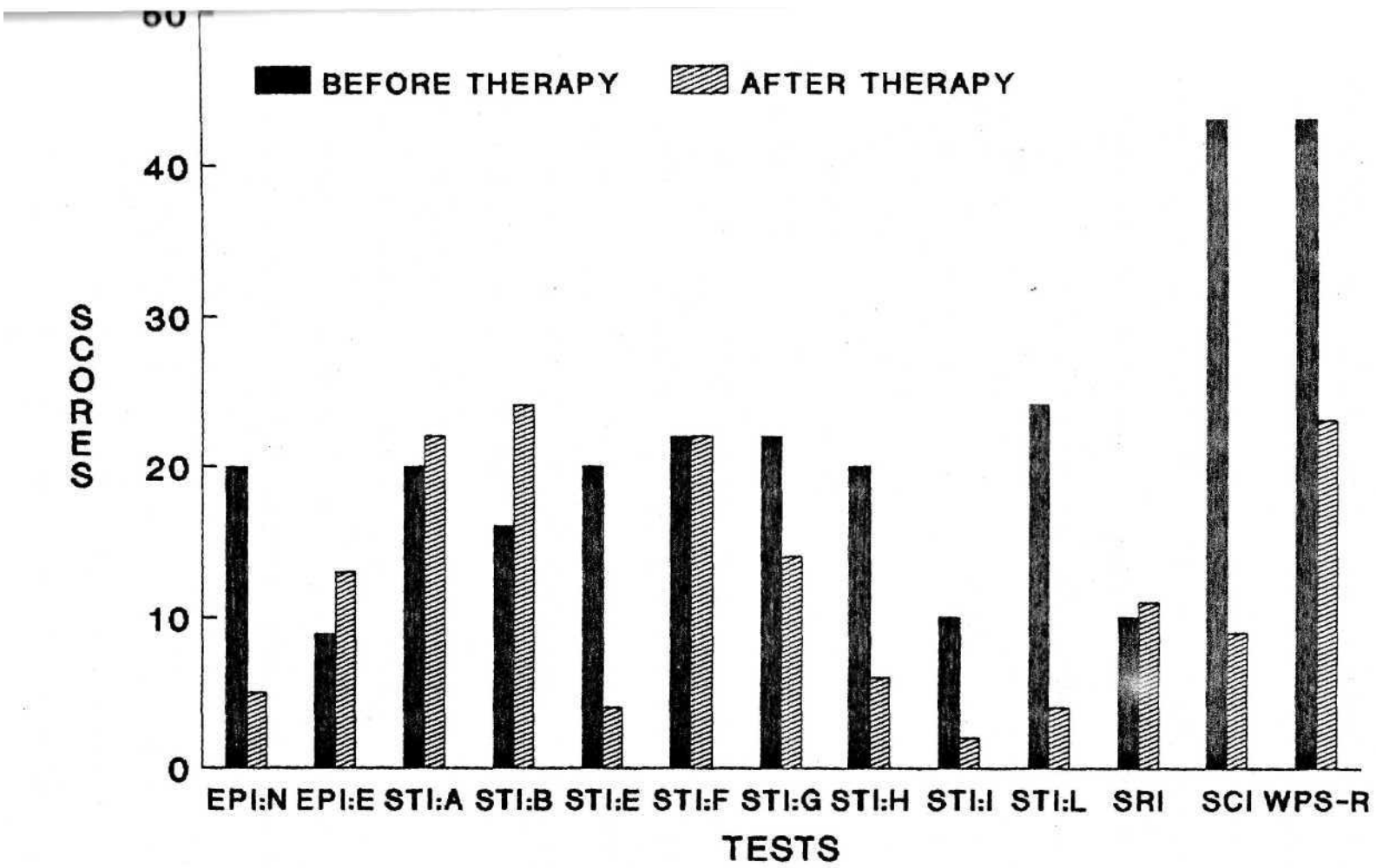

FIGURE 8: Personality scores of U.S.T. E.P.I.=Eysenck Personality Inventory, N=Neuroticism, E=Extraversion, S.T.I.=Surface Trait Inventory, A=Activity, B=Cyclothymia, E=Depression, F=Emotional instability, G=Introversion, H=Feeling of inferiority, I=Psychosomatic Disorders, L=Interpersonal Communication Disorders, S.C.I.=Self Confidence Inventory, S.R.I.=Social Reaction Inventory, WPS-R=Revised Willoughby Questionnaire.

introversion to extraversion, the score increased from 16 to 24 . A statistically significant improvement was noticed on traits like depression, feelings of inferiority and interpersonal communication disorders. The score on depression reduced from 20 to 4 (X2=10.67, P=0.00), the score on feelings of inferiority reduced from 20 to 6 (X2=7.54, P=0.00). Also his interpersonal communication was improved as indicated in Figure.7, the score reduced from 24 to 4 (X2=14.28, P=0.00).

In general, the psychological tests score before therapy indicated that U.S.T. was an introverted person with neuroticism and high social anxiety, low self confidence, emotional instability and poor interpersonal communication. The scores on psychological test after therapy indicated extraversion, reduction in neuroticism, reduction in social anxiety, improved self confidence, no depressive feature and improved interpersonal communication. Fig-11 shows that P.M.R. had brought some changes in the speech of U.S.T. and also reduced his social anxiety. Further, there was a change in the speech of U.S.T. with rhythmic speech technique and assertive techniques. Generalization of fluency procedures helped him to increase his self confidence, improved interpersonal communication and to maintain his fluency. The post therapy scores of personality tests indicated positive changes in personality of U.S.T.

It was attempted to followup U.S.T. at the end of first month, third month and after six months. But U.S.T. was not available for followups sessions.

CASE-5

R.P.M., was a twenty nine years old male from an rural area with M.Sc. qualification. The case reported that the stuttering started, during his early childhood. According to B.P.M. his stuttering aggravating stimuli were: starting conversation with strangers, elders and senior officers. His stuttering increased significantly whenever he got excited/tired or afraid. Due to the stuttering problem he developed inferiority feelings and felt disgusted in life.

The speech of the case consisted of repetitions and prolongation. The secondaries consisted of tension in the neck muscles, tremors of limbs and sweating.

The response pattern of R.P.M. to treatment is illustrated in Figure.9. The figure indicated that eight session of P.M.R. had brought some improvement in the speech of R.P.M. His stuttering reduced to 4.79% SS in reading and 12.63% SS in spontaneous speech. As he had not reached 98% fluency criteria, he was tried on R.S.T. There was significant reduction in his stuttering with R.S.T. and at the eighth session of R.S.T. he had no dysfluencies both in reading and in spontaneous speech.

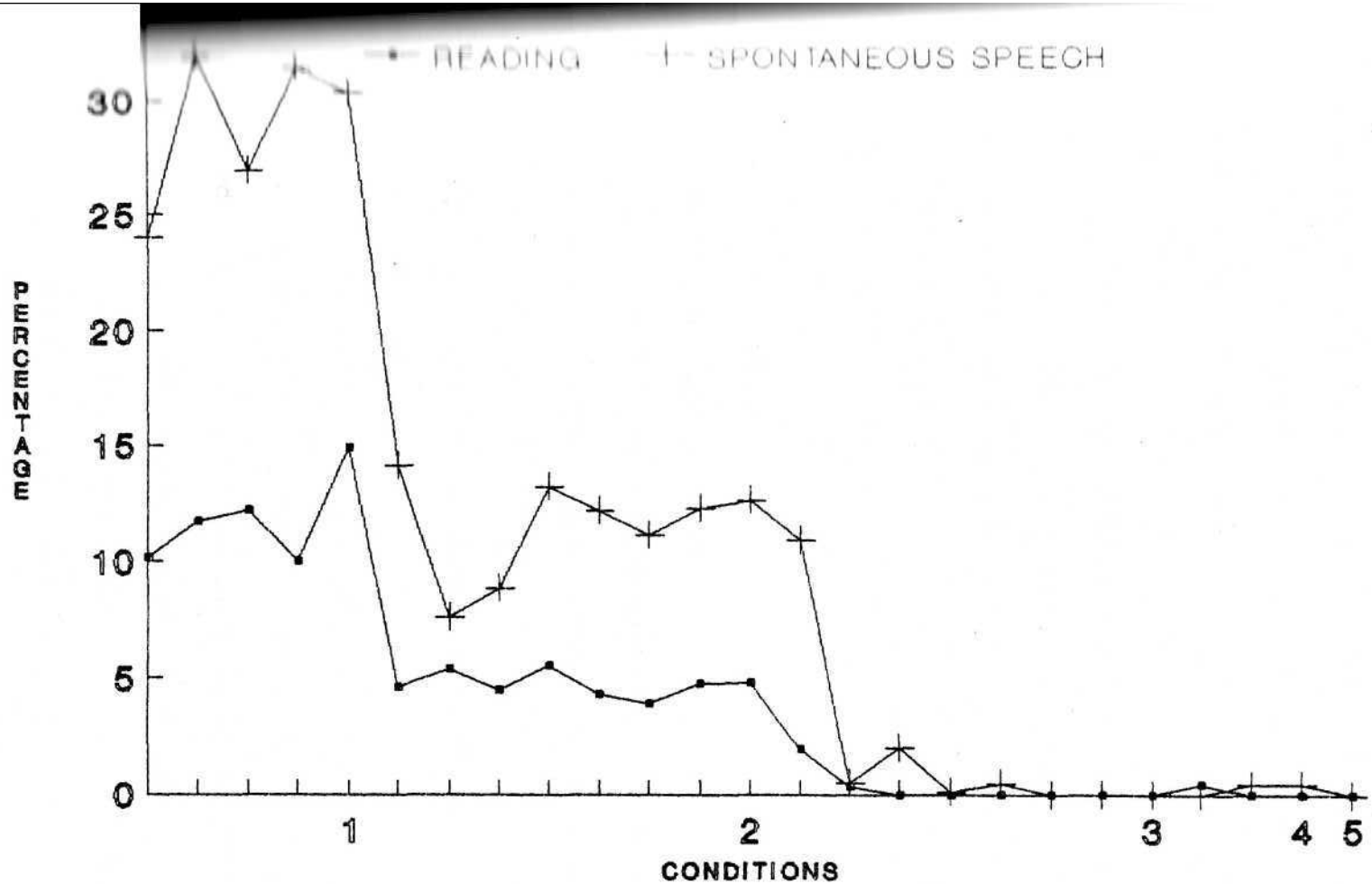

FIGURE 9: Percentage of Stuttering of R.P.M. Conditions: 1.Base Line, 2.Progressive Muscular Relaxation, 3.Rhythmic Speech, 4.Assertive Technique, 5.After Therapy.
The points between conditions on X-axis indicate number of sessions.

However, as R.P.M. reported lack of confidence in meeting the strangers, Assertion Training was administered. His fluency continued to be good in both reading and spontaneous speech throughout and stuttering reduced to 0 both in reading and spontaneous speech. It can also be seen from figure that the generalization procedure had helped him to maintain his fluency outside the clinic. His rate of speech had increased to 220 SPM in reading and 210 SPM in spontaneous speech compared to his base rate of 108 SPM in reading and 64 SPM in spontaneous speech.

Table.5 and Figure.10 present a comparison of scores of R.P.M. on psychological tests, before and after therapy. His score on self confidence inventory reduced from 71 to 16, (X^2 =34.77, P=0.00), further the score on Revised Willoughby reduced from 75 to 15 (X^2=40.00, P=0.00). This reduced scores on self confidence inventory and revised Willoughby indicated that his social anxiety reduced and his self confidence improved. No significant improvement on Social Reaction Inventory was noticed (X^2=1.31, P=0.25), but his score reduced from 12 to 7 which indicated internal locus of control. Further change was noticed on E.P.I., the score on extraversion scale increased from 8 to 19, (X^2=4.48, P=0.03). No statistically significant change was noticed on neuroticism, the score reduced from 17 to 12 (X^2=0.86, P=0.35). But clinically the reduction in this score indicated reduced neuroticism. Further the score on

TABLE 5

Presents the scores of R.P.M. on Pyschological tests before and after therapy.

Test	Before Therapy	After Therapy	X2 value	P value.
1) S.C.I.	71	1§	34.77	0.0000 *
2) WPS-R	75	15	40.00	0.0000 *
3) S.R.I.	12	7	1.31	0.2513
4) E.P.I.:				
a) Neuroticism	17	12	0.86	0.3532
b) Extroversion	8	19	4.48	0.0343 *
5) S.T.I.:				
a) Activity	10	13	10.00	0.0016 *
b) Cyclothymia	16	24	1.60	0.2059
c) Depression	22	6	9.14	0.0025 *
d) Emotional Instability	20	12	2.00	0.1573
e) Introversion	18	12	1.20	0.2733
f) Feelingsof inferiority	4	4	0.00	1.0000
g) Psychosomatic disorders	4	2	0.67	0.0142
h) Interpersonal Communication disorders	16	8	2.67	0.1025

* = Statistically significant

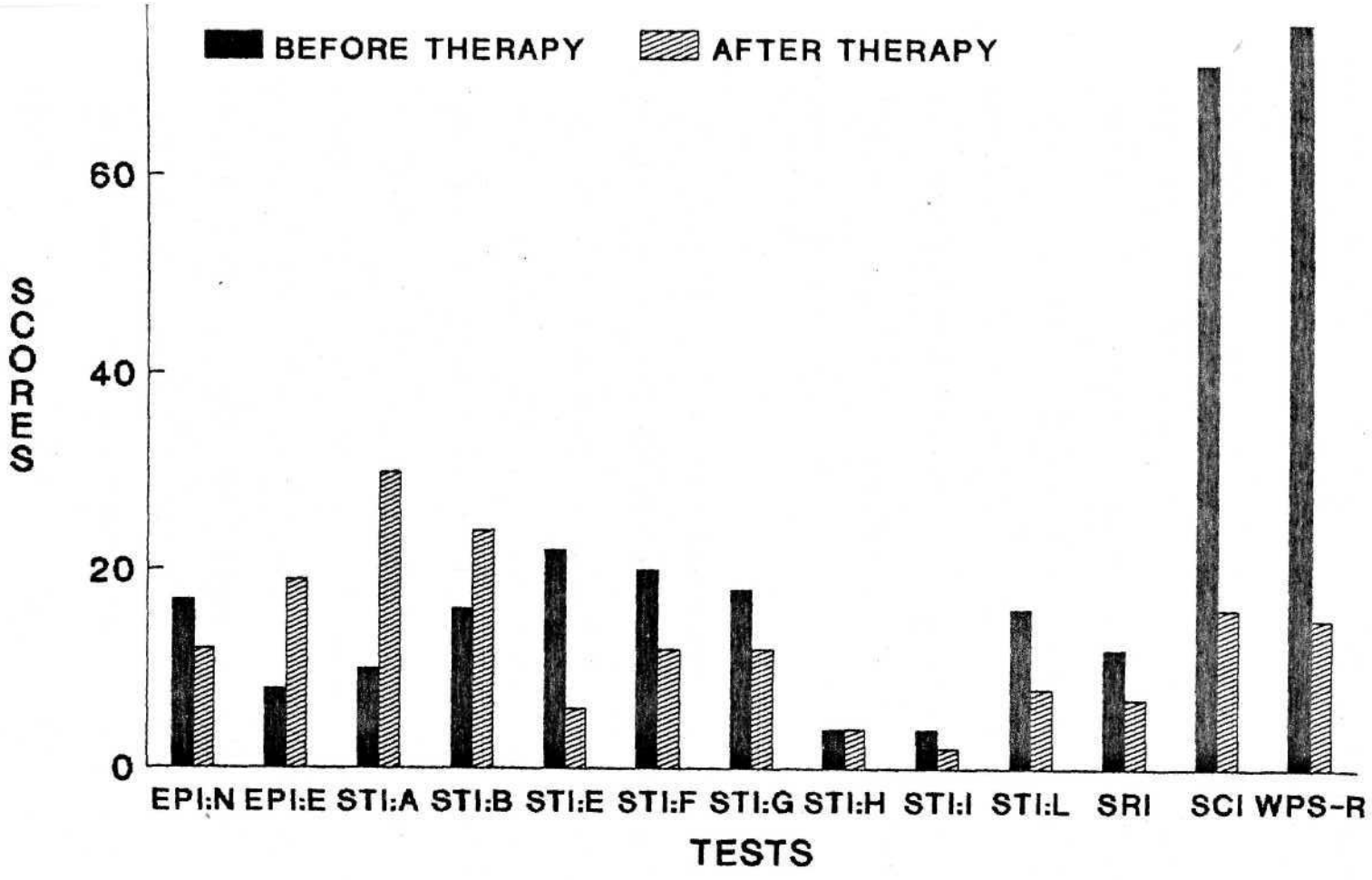

FIGURE 10: Personality scores of R.P.M. E.P.I.=Eysenck Personality Inventory, N=Neuroticism, E=Extraversion, S.T.I.=Surface Trait Inventory, A=Activity, B=Cyclothymia, E=Depression, F=Emotional instability, G=Introversion, H=Feeling of inferiority, I=Psychosomatic Disorders, L=Interpersonal Communication Disorders, S.C.I.=Self Confidence Inventory, S.R.I.=Social Reaction Inventory, WPS-R=Revised Willoughby Questionnaire.

cyclothymia of Surface Trait Inventory indicated that R.P.M. moved from introversion to extraversion, the score increased from 16 to 24 (X2=1.6, P=0.20). A statistically significant improvement was noticed on traits like depression and interpersonal communication disorders. The score on depression reduced from 22 to 6 (X2=9.14, P=0.00). Also his interpersonal communication was improved i.e., his score reduced from 16 to 8 (X2=2.67, P=0.10). Though this changes was not statistically significant, this reduction of score from 16 to 8 indicated the improvement in his interpersonal communication after therapy.

In general, the psychological test scores before therapy indicated that R.P.M. was an introverted person with neuroticism and high social anxiety, low self confidence, depression, and poor interpersonal communication. The scores on psychological tests, after therapy indicated reduction in social anxiety, improved self confidence, no reduced depressive feature and improved interpersonal communication. On speech therapy P.M.R. had brought some changes in the speech of R.P.M. and also reduced his social anxiety. There was a significant change in the speech of R.P.M. with rhythmic speech and assertive training. Generalization procedures also helped him to increase his self confidence, improved interpersonal communication and to maintain his fluency. The post therapy scores of personality tests indicated positive changes in personality of R.P.M.

It was attempted to followup R.P.M. at the end of first month, third month and after six months. But R.P.M. was not available for followup sessions.

CASE-6

B.H.N., a sixteen years old male was from a rural area had studied upto 12th standard. The case reported that the stuttering started when he was five year of age. According to B.H.N. his stuttering aggravating stimuli were: starting conversation with strangers and elders. He used to experience increase in stuttering whenever he got excited/tired. Due to the stuttering problem, he developed inferiority feelings, felt disgusted in life and worried about the problem.

The speech of the case consisted of repetitions and prolongations. The secondaries consisted of tension in the neck muscles, chest and stomach during stuttering.

Figure.11 indicated that eight sessions of P.M.R. had brought some improvement in the speech of B.H.N. His stuttering reduced in reading and also in spontaneous speech. Signifleant reduction in his stuttering was noticed with the use of R.S.T. and at the eighth session of R.S.T. he had no dysfluencies both in reading and in spontaneous speech.

However, as B.H.N. reported lack of confidence in meeting the strangers, Assertive Technique was administered. His speech fluency continued to be good in both reading and spontaneous speech and stuttering reduced to 0 both in reading and spontaneous speech. It can also be seen from the figure that the generalization procedure had helped him

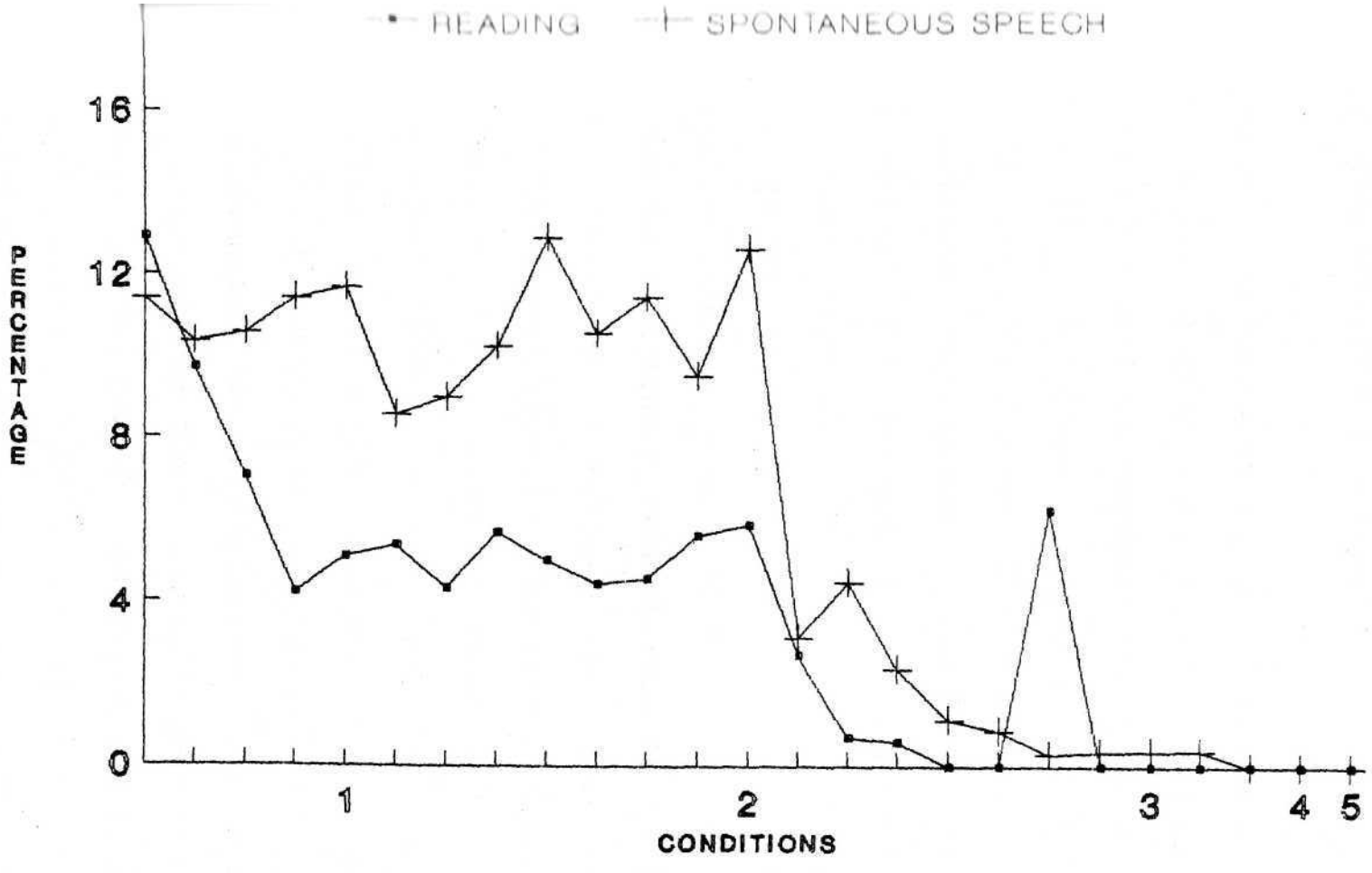

FIGURE 11: Percentage of Stuttering of B.H.N. Conditions: 1.Base Line, 2.Progressive Muscular Relaxation, 3.Rhythmic Speech, 4.Assertive Technique, 5.After Therapy.
The points between conditions on X-axis indicate number of sessions.

to maintain his fluency outside the clinic. His rate of speech after therapy had increased.

Table.6 and Figure.12 present a comparison of scores of B.H.N. on psychological tests, before and after therapy. His score on self confidence inventory reduced from 73 to 55, (X2 =2.53, P=0.11). The score on revised Willoughby reduced from 41 to 14 (X2=13.25, P=0.00). This significant reduction on WPS-R indicated reduced social anxiety. No significant improvement on S.R.I, was noticed (X2=0.53, P=0.46), but the reduced score from 10 to 7 indicated internal locus of control. Further change was noticed on E.P.I. The scores on extraversion increases from 9 to 16, (X2=1.96, P=0.16) and the score on neuroticism reduced from 15 to 10 (X2=1.00, 7=0.31). Though not significant the change was indicated clinical improvement in personality trait. Also the score on cyclothymia of S.T.I. increased from 14 to 18 (X2=0.50, 5=0.47). The scores on feelings of inferiority and interpersonal communication disorders were reduced to some extent i.e., 28 and 22 to 18 and 13 respectively.

In general, the psychological test scores before therapy indicated that B.H.N. was an introverted person with high social anxiety, low self confidence, and having internal locus of control, depressive features, feelings of inferiority and poor interpersonal communication. The scores on psychological test after therapy indicated a change to

TABLE 6

Presents the scores of B.M.H. on Pyschological tests before and after therapy.

Test	Before Therapy	After Therapy	value	P value
1) S.C.I.	73	55	2.53	0.1116
2) WPS-R	41	14	13.25	0.0003 *
3) S.R.I.	10	7	0.53	0.4669
4) E.P.I.:				
a) Neuroticism	15	10	1.00	0.3173
b) Extroversion	9	16	1.96	0.1615
5) S.T.I.:				
a) Activity	10	14	0.66	0.4142
b) Cyclothymia	14	18	0.50	0.4795
c) Depression	25	21	0.35	0.5553
d) Emotional Instability	21	22	0.02	0.8778
e) Introversion	24	11	4.83	0.0283 *
f) Feelings of inferiority	28	18	2.17	0.1404
g) Psychosomatic disorders	16	2	10.89	0.0010 *
h) Interpersonal Communication disorders	22	13	2.31	0.1282

* = Statistically significant

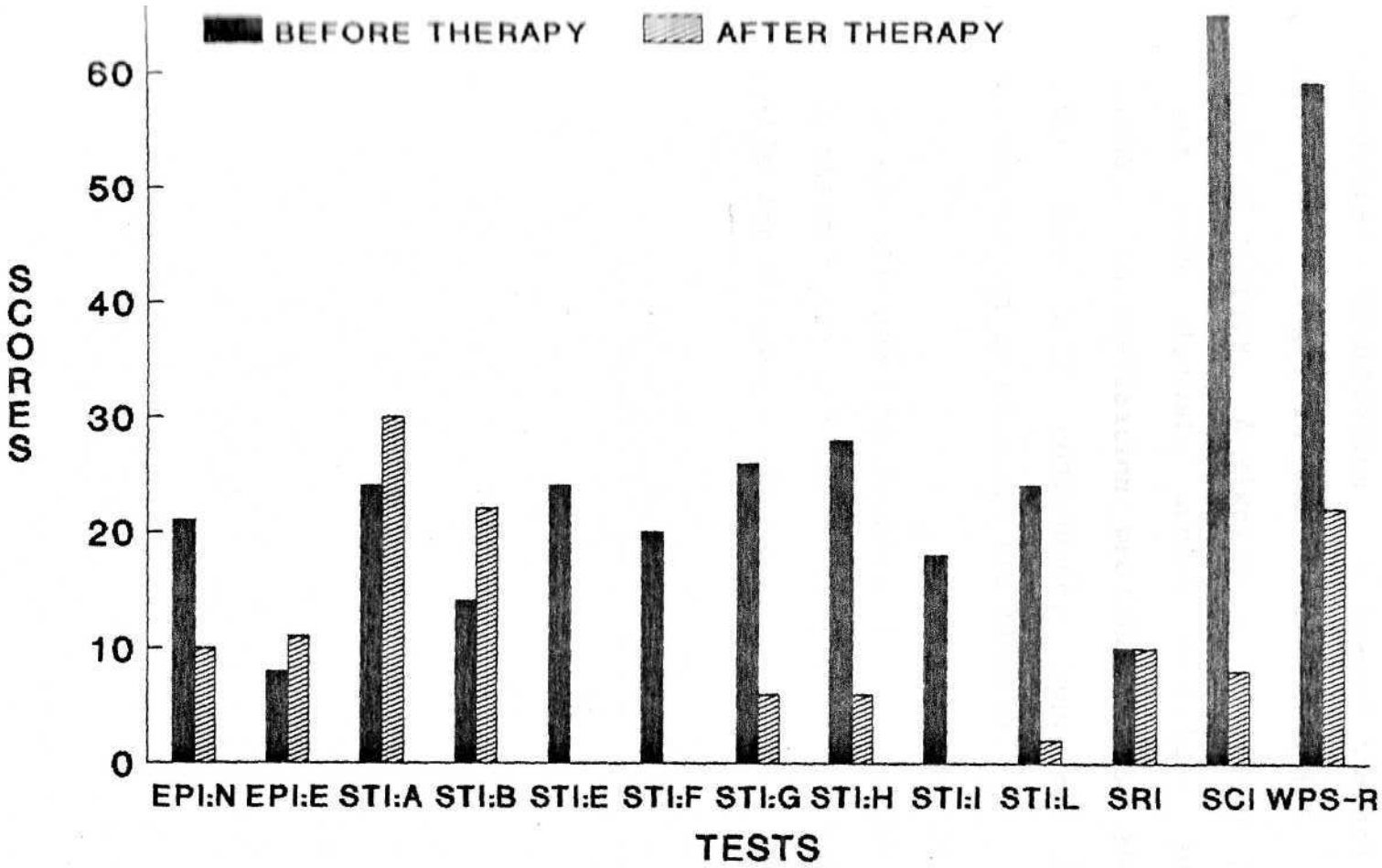

FIGURE 14: Personality scores of B.J. E.P.I.=Eysenck Personality Inventory, N=Neuroticism, E=Extraversion, S.T.I.=Surface Trait Inventory, A=Activity, B=Cyclothymia, E=Depression, F=Emotional instability, G=Introversion, H=Feeling of inferiority, I=Psychosomatic Disorders, L=Interpersonal Communication Disorders, S.C.I.=Self Confidence Inventory, S.R.I.=Social Reaction Inventory, WPS-R=Revised Willoughby Questionnaire.

extraversion, reduction in social anxiety, and improved interpersonal communication. On speech therapy P.M.R. had brought some changes in the speech of B.H.N. after eight sessions of therapy. A significant change in the speech of was got with rhythmic speech technique and assertive technique. Generalization procedures also helped him to increase his self confidence, improved interpersonal communication and to maintain his fluency.

It was attempted to followup B.H.N. at the end of first month, third month and after six months. B.H.N. was not

available forfollow up sessions.

CASE-7

B.J., was a Twenty three years old male from an urban area with a Commerce degree. The case reported that the stuttering started when he was eleven years of age. According to B.J. the stuttering aggravating stimuli were: starting conversation with strangers and to groups. He was afraid of answering questions, and he was worried and anxious whenever he stuttered. Many times he felt being useless and burden to his parents and society. He developed inferiority feelings and felt disgusted in life.

The speech of the case consisted of repetitions and prolongations. The secondaries consisted of tension in the body and shaking of hands.

The response pattern of B.J. to treatment is shown in Figure.13. The figure indicated that eight sessions of P.M.R. had not brought much improvement in speech of B.J. (8.65% SS in reading and 9.72% SS in spontaneous speech). Significant reduction in his stuttering with R.S.T. was noticed and at the eighth session of R.S.T. his stuttering reduced to 1.05% SS in reading and 1.05% SS in spontaneous speech.

However, as B.J. reported lack of confidence in meeting the strangers, Assertion Training was administered. His speech fluency continued to be good and stuttering reduced to

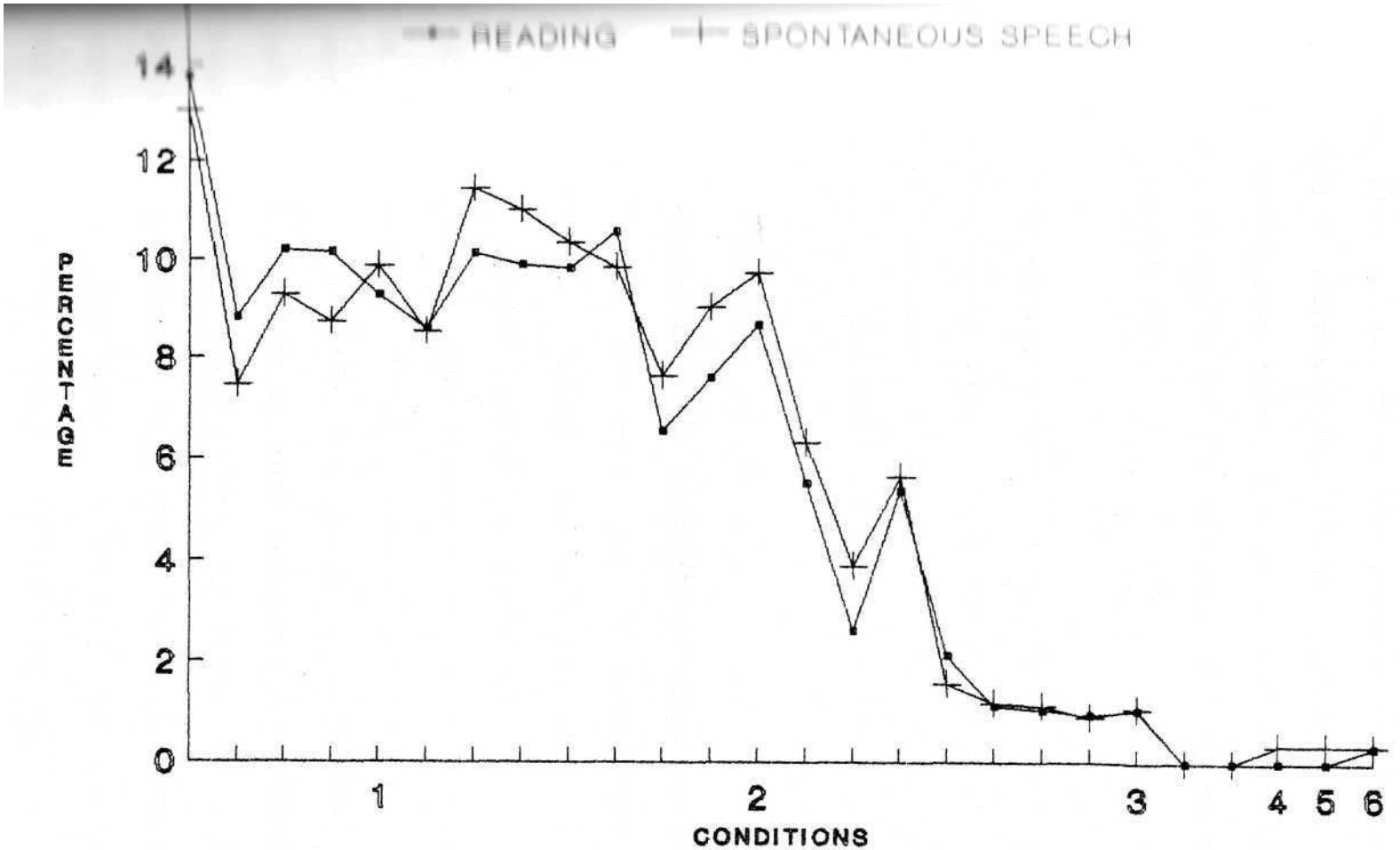

FIGURE 13: Percentage of Stuttering of B.J. Conditions: 1.Base Line, 2.Progressive Muscular Relaxation, 3.Rhythmic Speech, 4.Assertive Technique, 5.After Therapy, 6.Follow-up.
The points between conditions on X-axis indicate number of sessions.

0% in reading and 0.34% in spontaneous speech. It can also be seen from figure that the generalization procedure had helped him to maintain his fluency outside the clinic. His rate of spontaneous speech had increased compared to his base rate i.e., from 102 to 175 and rate of reading has increased from 103 to 160 SPM.

The personality scores before therapy and after therapy was illustrated in Table.7 and Figure.14. As indicated in the figure his score on S.C.I, reduced from 65 to 8 (X2 = 44.51, P=0.00). Further the score on WPS-R reduced from 59 to 22 (X2=16.90, P=0.00) which was significant. These reductions indicated reduction in social anxiety and gained in self confidence. No significant improvement on S.R.I. was noticed and the score on internal locus of control remained same. Change was noticed on E.P.I., scores. Extraversion scale increased significantly from 8 to 11, (X2=0.47, P=0.49). The score on neuroticism reduced from 21 to 10 (X2=3.90, P=0.05) which showed a reduction in neuroticism. Further the score on cyclothymia of S.T.I. indicated change from introversion to extraversion, the scores increased from 14 to 22 (X2=1.78, P=0.0.18). The increase in score indicates clinical importance. A statistically significant improvement was noticed on S.T.I. The scores on depression, emotional instability, feelings of inferiority, psychosomatic disorders and interpersonal

TABLE 7

Presents the scores of B.J. on Pyschological tests before and after therapy.

Test	Before therapy	After Therapy	X2 value	P value
1) S.C.I.	65	8	44.51	0.0000 *
2) WPS-R		22	16.90	0.0000 *
?) S.R.I.	10	10	0.00	1.0000
4) E.P.I.:				
a) Neuroticisra	21	10	3.90	0.0482 *
b) Extroversion	§	11	0.47	0.4913
5) S.T.I.:				
a) Activity	24	30	0.67	0.4142
b) Cyclothymia	14	22	1.78	0.1824
c) Depression	20	0	24.00	0.0000 *
d) Emotional Instability	20	0	20.00	0.0000 *
e) Introversion	26	6	12.53	0.0004 *
f) Feelingsof inferiority	28	6	14.23	0.0002 *
g) Psychosomatic disorders	18	0	18.00	0.0000 *
h) Interpersonal Communication disorders	24	2	18.61	0.0000 *

* = Statistically significant

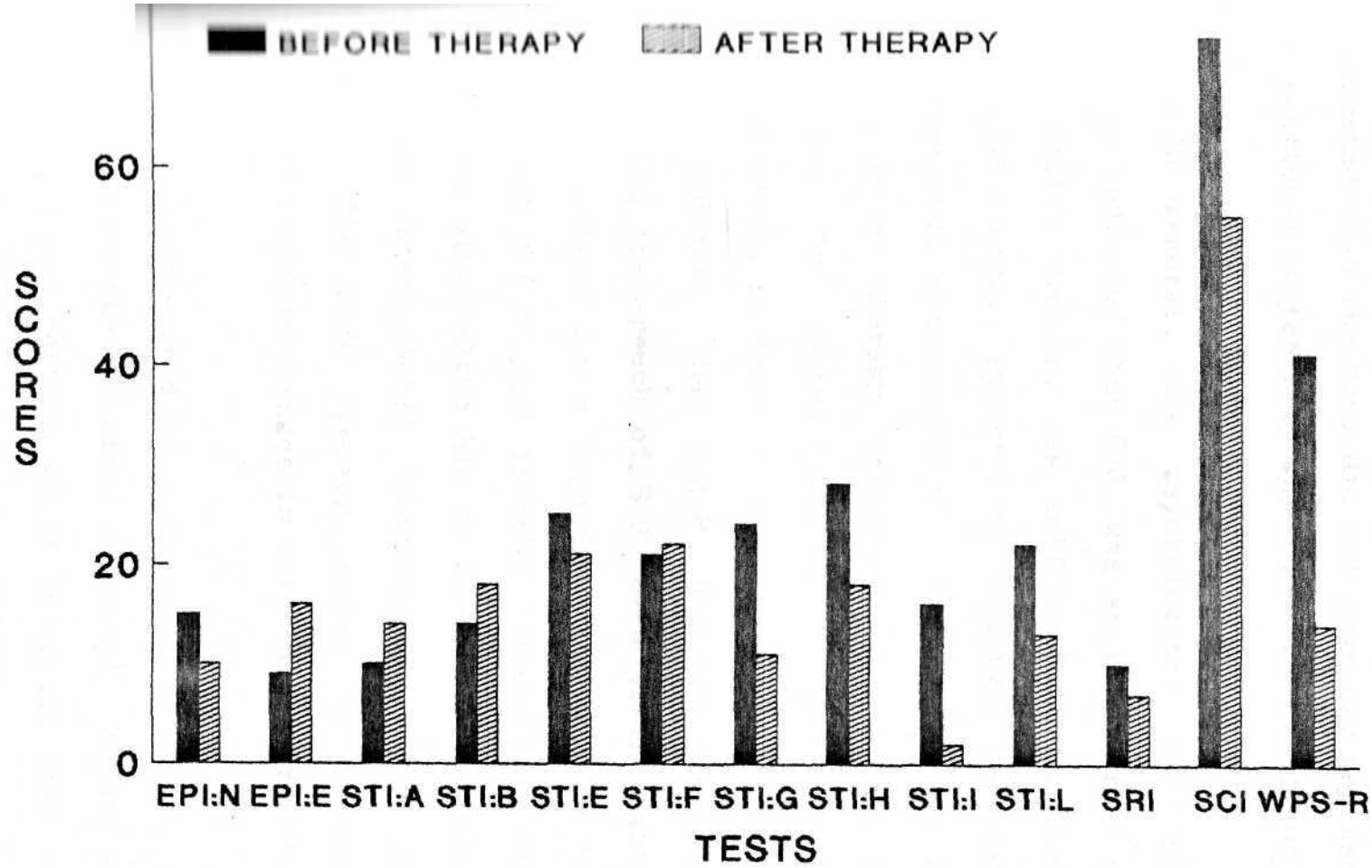

FIGURE 12: Personality scores of B.H.N. E.P.I.=Eysenck Personality Inventory, N=Neuroticism, E=Extraversion, S.T.I.=Surface Trait Inventory, A=Activity, B=Cyclothymia, E=Depression, F=Emotional instability, G=Introversion, H=Feeling of inferiority, I=Psychosomatic Disorders, L=Interpersonal Communication Disorders, S.C.I.=Self Confidence Inventory, S.R.I.=Social Reaction Inventory, WPS-R=Revised Willoughby Questionnaire.

communication disorders reduced significantly. This indicated that the case did not have any depressive feelings or emotional instability which was the result of therapy.

In general, the psychological "test scores before therapy indicated that B.J. was an introverted neurotic with high social anxiety, low self confidence, having internal locus of control, inferiority feelings, depression and poor interpersonal communication. The scores on psychological zests after therapy indicated change to extraversion, reduction in social anxiety, improved interpersonal communication, no depressive features and emotionally stable. Figure indicated that P.M.R. had not brought significant changes in the speech of B.J. even after eight sessions of therapy. There was a significant change in the speech of B._J. with R.S.T. and assertive training. Generalization procedures also helped him to increase his self confidence, improved interpersonal communication and maintain his fluency. The post therapy scores of personality tests indicated positive changes in personality of B.J.

It was attempted to follow up B.J.at the end of first third month and after six month. He was available for second followup session which indicated that he maintained his fluency after three months of followup.

CASE-6

N.R.G., a Twenty three years old male was from an urban area with an Engineering degree. The case reported that the stuttering started when he was fifteen year of age. According to N.R.G, the stuttering aggravating stimuli were: starting conversation with strangers and to groups. In such situations he used to avoid talking, fearing that he might get stuttering and others may laugh at him. He was worried and anxious whenever he got stuttering. He developed inferiority feelings and felt disgusted in life.

The speech of the case consisted of repetitions and prolongations. The secondaries consisted of tension in the body and shanking of hands.

The response pattern of N.R.G. to treatment is shown in Figure.15. Perusal of figure indicated that eight sessions of P.M.R. had brought improvement in the speech of N.R.G. His stuttering gradually reduced to 5.96% SS in reading and 7.00% SS in spontaneous speech. However as it did not met 98% fluency criteria he was put on R.S.T. which brought about reduction in his stuttering. His stuttering reduced 0% SS in reading and 0.89% SS in spontaneous speech by eighth session.

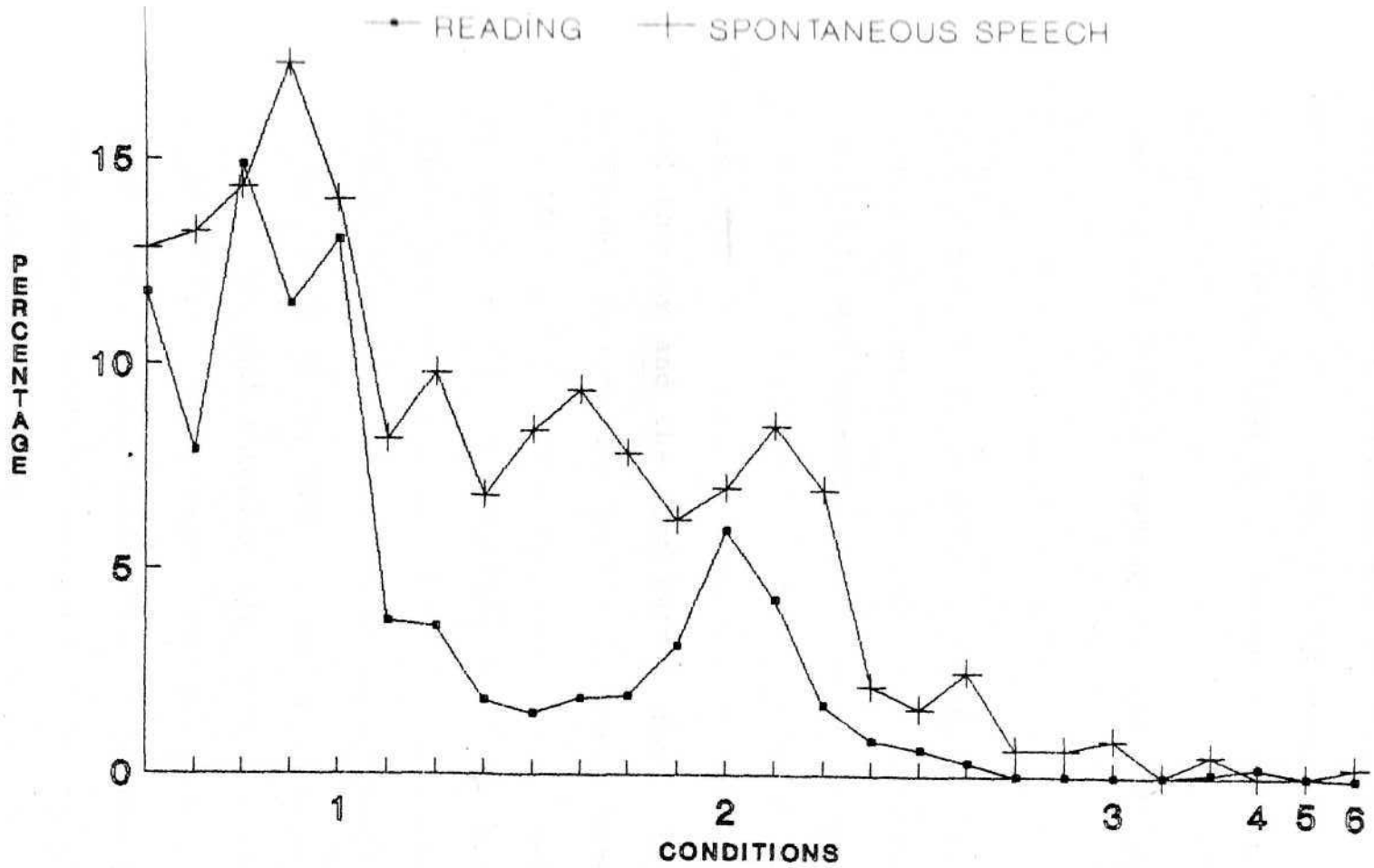

FIGURE 15: Percentage of Stuttering of N.R.G. Conditions: 1.Base Line, 2.Progressive Muscular Relaxation, 3.Rhythmic Speech, 4.Assertive Technique, 5.After Therapy, 6.Follow-up.
The points between conditions on X-axis indicate number of sessions.

Since, N.R.G. reported lack of confidence in meeting the strangers, Assertive Training was administered. His speech fluency continued to be good in both reading and spontaneous speech. The generalization procedure helped him to maintain his fluency outside the clinic. His rate of speech had increased to 226 SPM in reading and 204 SPM in spontaneous speech.

Table.8 and Figure.16 present a comparison of scores of N.R.G. on psychological tests, before and after therapy. His score on S.C.I, was significantly reduced from 66 to 23, (X^2 =20.77, P=0.00). Further the score on WPS-R from 74 to 40 X^2=10.14, P=0.18). This reduced scores indicated reduction in social anxiety and the case gained more self confidence. No significant improvement on S.R.I, was noticed (X^2=0.18, P=0.67), the scores remained the same which indicated internal locus of control. Further no change was noticed on E.P.I. The score on extraversion scale increased from 6 to 10. (X^2=1.0, P=0.31) but the score on neuroticism reduced from 18 to 12 (X^2=1.20, P=0.27) which shows reduction in neuroticism. No statistically significant improvement was noticed on S.T.I. The scores on depression, emotional instability, feelings of inferiority, psychosomatic disorders and interpersonal communication disorders were reduced, which were not significant. However the reduction on these traits showed some clinical improvement in his behaviour.

TABLE 8

Presents the scores of N.R.G. on Pyschologlcal tests before and after therapy.

Test	Before Therapy	After Therapy	X2 value	P value	
1) S.C.I.	66	23	20.77	0.0000	*
2) WPS-R	74	40	10.14	0.0015	*
3) S.R.I.	12	10	0.18	0.6698	
4)E.P.I.:					
a) Neuroticism	18	12	1.20	0.2733	*
b) Extroversion	6	10	1.00	0.3173	*
5) S.T.I.:					
a) Activity	20	14	1.06	0.3035	*
b) Cyclothymia		16	0.13	0.7150	
c) Depression	24	14	2.63	0.1048	*
d) Emotional Instability	22	14	1.78	0.1824	*
e) Introversion	26	14	3.60	0.0578	*
f) Feelingsof inferiority	18	14	0.50	0.4795	
g) Psychosomatic disorders	12	6	2.00	0.1573	
h) Interpersonal Communication disorders	24	12	4.00	0.0455	*

' = Statistically significant

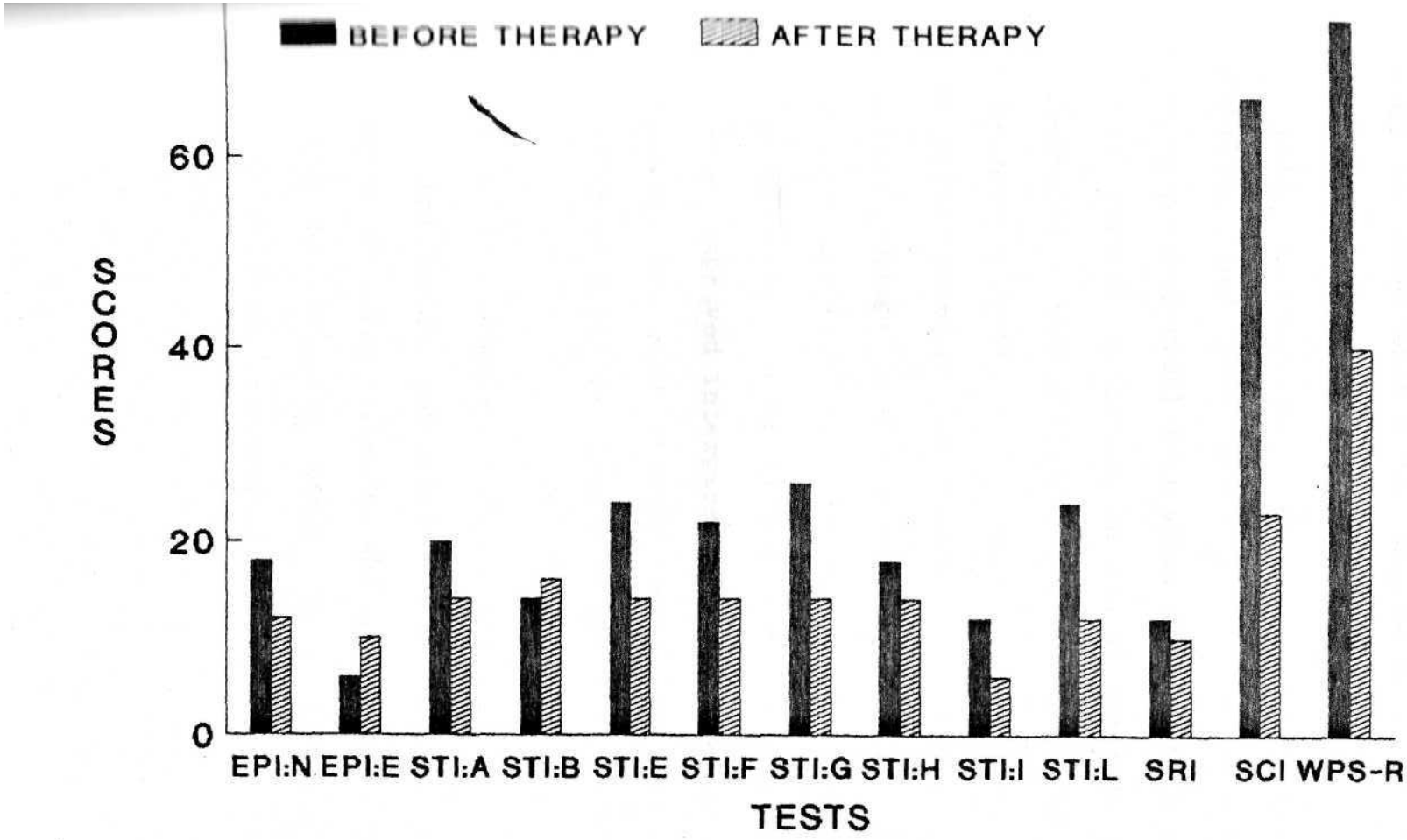

FIGURE 16: Personality scores of N.R.G. E.P.I.=Eysenck Personality Inventory, N=Neuroticism, E=Extraversion, S.T.I.=Surface Trait Inventory, A=Activity, B=Cyclothymia, E=Depression, F=Emotional instability, G=Introversion, H=Feeling of inferiority, I=Psychosomatic Disorders, L=Interpersonal Communication Disorders, S.C.I.=Self Confidence Inventory, S.R.I.=Social Reaction Inventory, WPS-R=Revised Willoughby Questionnaire.

In general, the psychological test scores before therapy indicated that N.R.G. was an introverted person with neuroticism, external locus of control, high social anxiety, low self confidence, depressive features emotional instability, and poor interpersonal communication. The scores on psychological test after therapy indicated internal locus of control, reduction in social anxiety, and improved interpersonal communication. Figure indicated that P.M.R. had brought significant change in the speech of N.R.G. after eight sessions of therapy. Further, there was a significant change in the speech of N.R.G. with rhythmic speech technique and assertion training. Generalization of fluency procedures also helped him to increase his self confidence, improved interpersonal communication and maintain his fluency. The post therapy scores of personality tests also indicated positive changes in personality of N.R.G.

It was attempted to followup N.R.G. at the end of first month, third month, and after six month. He was available for second followup session which indicated that he was maintained his fluency after three month of followup, stuttering score on spontaneous speech was 0.28% at the time of followup.

CASE-9

B.V.B. a Twenty three years old male was from a rural area with a Diploma in commercial practice. The case reported that the stuttering started when he was five year of age. But the severity was increased since 2-3 years. According to B.V.B. his stuttering aggravating stimuli were starting conversation with strangers and in the presence of teachers. He was worried and anxious whenever he stuttered. He developed inferiority feelings and avoided meeting people.

The speech of the case consisted of repetitions and prolongations. The secondaries consisted of tension in the body and sweating of hands.

The response pattern of B.V.B. to treatment is shown in Figure.17. The figure shows considerable improvement with P.M.R. therapy. His stuttering reduced to 4.02% SS in reading and 6.69% SS in spontaneous speech. With R.S.T. at the eighth session, his stuttering reduced to 0.36% SS in reading and 0% SS in spontaneous speech.

B.V.B. was tried on assertion Training as he reported lack of confidence in meeting the strangers. His speech fluency continued to be good in both reading and spontaneous speech and stuttering reduced completely. It can also be seen from figure that the generalization procedure had helped

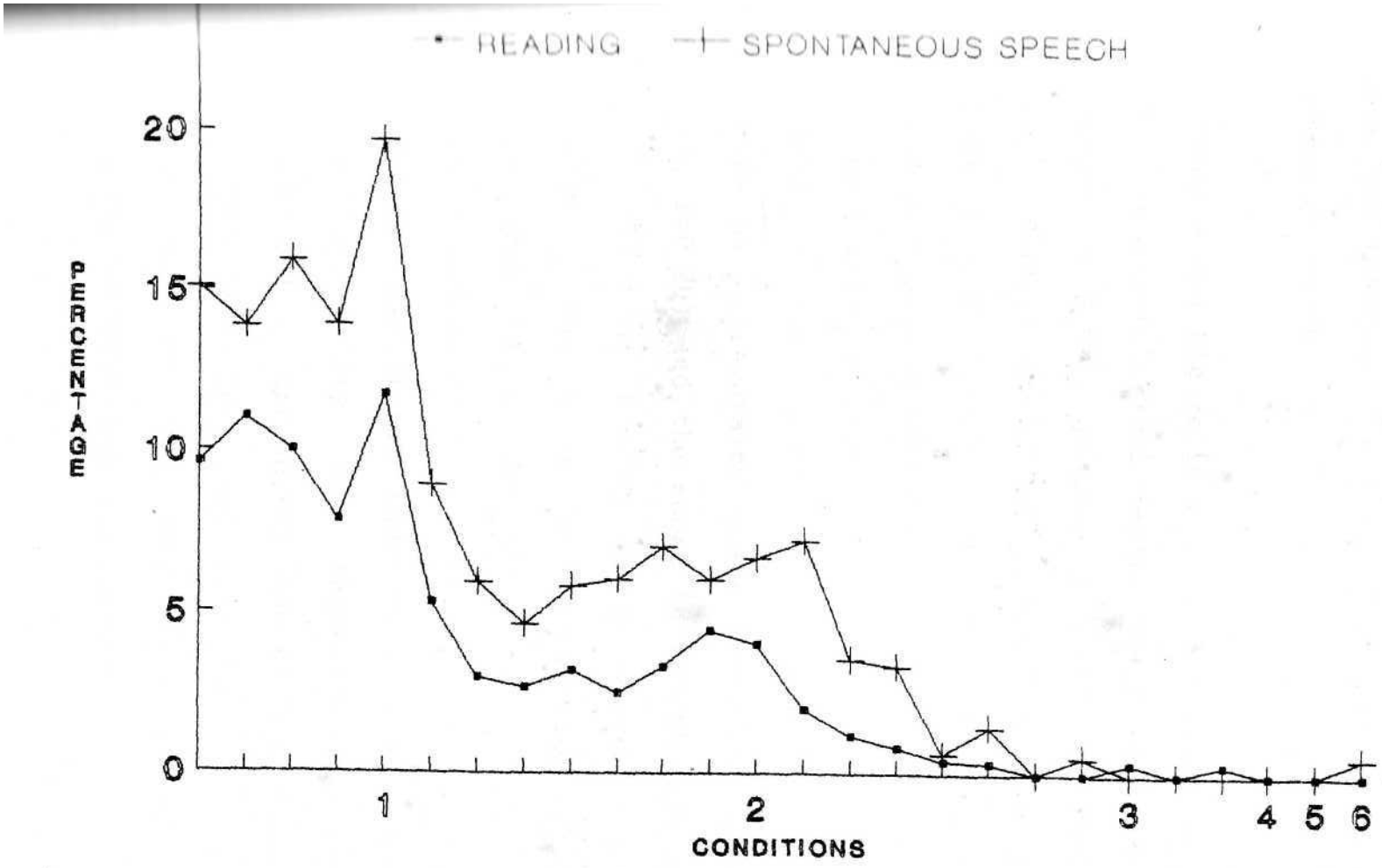

FIGURE 17: Percentage of Stuttering of B.V.B. Conditions: 1.Base Line, 2.Progressive Muscular Relaxation, 3.Rhythmic Speech, 4.Assertive Technique, 5.After Therapy, 6.Follow-up.
The points between conditions on X-axis indicate number of sessions.

him to maintain his fluency outside the clinic. His rate of speech had increased to 196 SPM in reading and 180 SPM in spontaneous speech.

Table.9 and Figure.18 present a comparison of scores of B.V.B. on psychological tests, before and after therapy. His score on S.C.I. reduced from 70 to 23, (X2 =23.75, P=0.00). Further the score on WPS-R reduced from 14 to 9 (X2=1.09, P=0.29). This reduced scores indicated that the case had gain more confidence. On S.R.I. the score reduced from 7 to 4 which indicated the case maintain internal locus of control. Further significant change was noticed on E.P.I. The score on extraversion scale increased from 8 to 14, (X2=1.64, P=0.20) and the score on neuroticism reduced from 15 to 7 (X2=2.91, P=0.08) which showed a reduction in neuroticism. The score on cyclothymia of S.T.I. was increased from 14 to 22 (X2=1.78, P=0.18) which also suggested a change from introversion to extraversion. A statistically significant improvement was noticed on the emotional instability and interpersonal communication disorders of S.T.I. The scores reduced from 16 to 4 and 26 6 respectively. This indicated that the case gained more confidence and he was emotionally stable and his interpersonal communication was improved. .

TABLE 9

Presents the scores of B.V.B. on Pyschological tests before and after therapy.

Test	Before Therapy	After Therapy	X^2 value	P value
1) S.C.I.	70	23	23.75	0.0000 *
2) WPS-R	14	9	1.09	0.2971
3) S.R.I.	7	4	0.82	0.3657 *
4) E.P.I.:				
a) Neuroticism	15	7	2.91	0.0881 *
b) Extroversion	8	14	1.64	0.2008 *
5) S.T.I.:				
a) Activity	24	20	0.36	0.5465
b) Cyclothymia	14	22	1.78	0.1824
c) Depression	18	16	0.12	0.7316
d) Emotional Instability	16	4	7.20	0.0075 *
e) Introversion	22	6	9.14	0.0025 *
f) Feelingsof inferiority	26	20	0.78	0.3763
g) Psychosomatic disorders	24	8	8.00	0.0047 *
h) Interpersonal Communication disorders	26	6	12.50	0.0004 *

* = Statistically significant

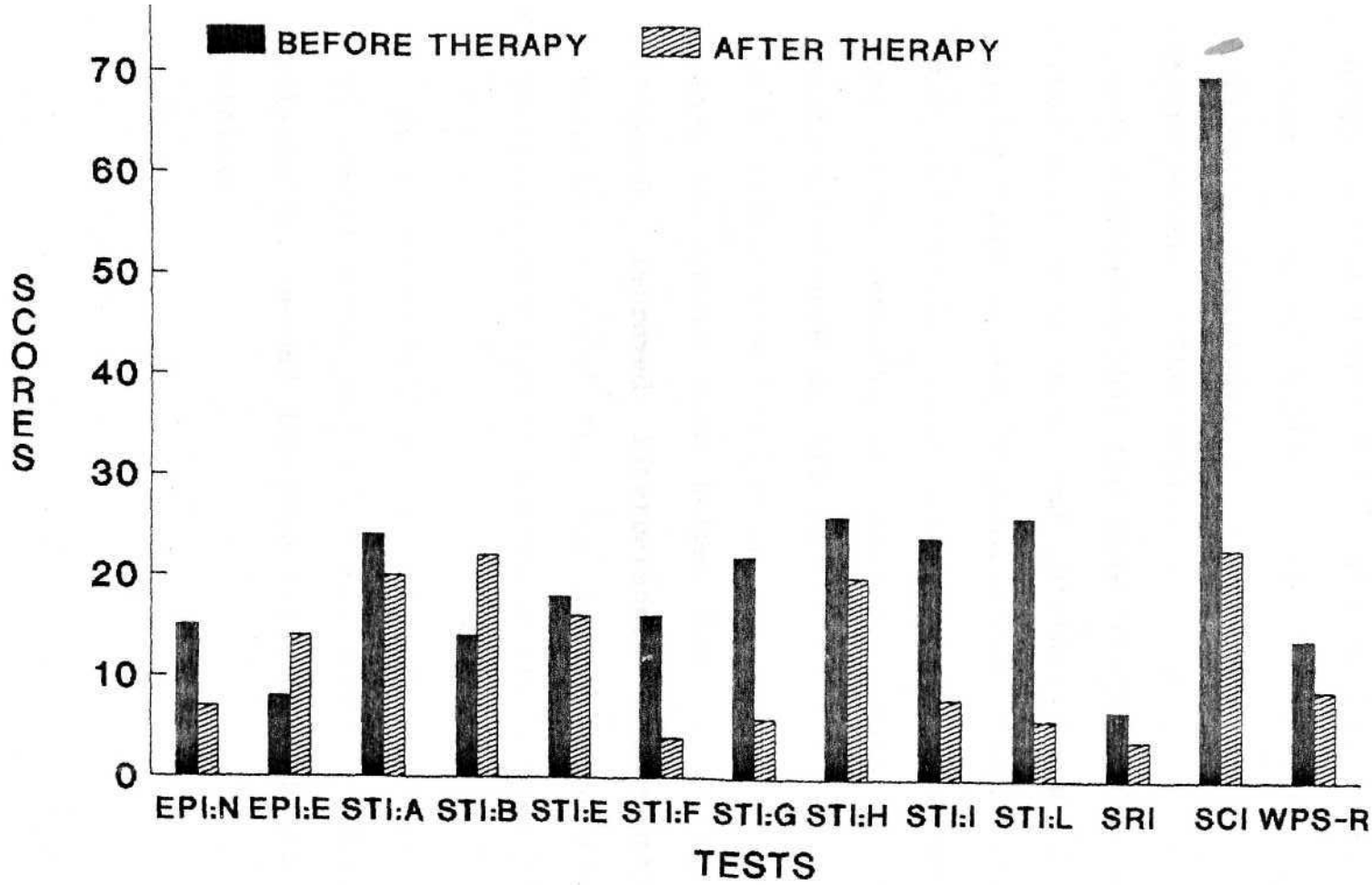

FIGURE 18: Personality scores of B.V.B. E.P.I.=Eysenck Personality Inventory, N=Neuroticism, E=Extraversion, S.T.I.=Surface Trait Inventory, A=Activity, B=Cyclothymia, E=Depression, F=Emotional instability, G=Introversion, H=Feeling of inferiority, I=Psychosomatic Disorders, L=Interpersonal Communication Disorders, S.C.I.=Self Confidence Inventory, S.R.I.=Social Reaction Inventory, WPS-R=Revised Willoughby Questionnaire.

In general, the psychological test scores before therapy indicated that B.V.B. was an introverted person with internal locus of control, inferiority feelings, low self confidence, depressive features and poor interpersonal communication. The scores on psychological test after therapy indicated that the case moved towards extraversion, gained self confidence, had internal locus of control and improved interpersonal communication. Figure indicated that P.M.R. had brought significant change in the speech of B.V.B. after eight sessions of therapy. Further, there was a significant change in the speech of B.V.B. with rhythmic speech technique and assertion training. Generalization of fluency procedures also helped him to increase his self confidence, improved interpersonal communication and to maintain his fluency. The post therapy scores of personality tests indicated positive changes in personality of B.V.B.

It was attempted to followup B.V.B. at the end of first month, third month and after six months. But B.V.B. was available for second followup sessions and his fluency was maintained.

CASE-10

N.S., a Twenty four years old male was from an urban area with Engineering degree. The case reported that the stuttering started when he was six year of age. According to N.S. his stuttering aggravating stimuli were: starting conversation with strangers, teachers and to a group. He developed inferiority feelings and felt disgusted in life.

The speech of the case consisted of repetitions and prolongations. The secondaries consisted of tension in the body, sweating all over the body and hand movements.

The response pattern of N.S. to treatment is shown in Figure.19. The figure showed that eight session of P.M.R. therapy brought improvement gradually in the speech of the case N.S (2.93% SS in reading and 5.96% SS in spontaneous speech). Further significant reduction in his stuttering with R.S.T. was seen at the eighth session (0.36% SS in reading and 0.36% SS in spontaneous speech). Assertive Training was administered as he reported lack of confidence in meeting the strangers. His speech fluency continued to be good and stuttering reduced completely both in reading and also in spontaneous speech. The generalization procedure had helped him to maintain his fluency outside the clinic.

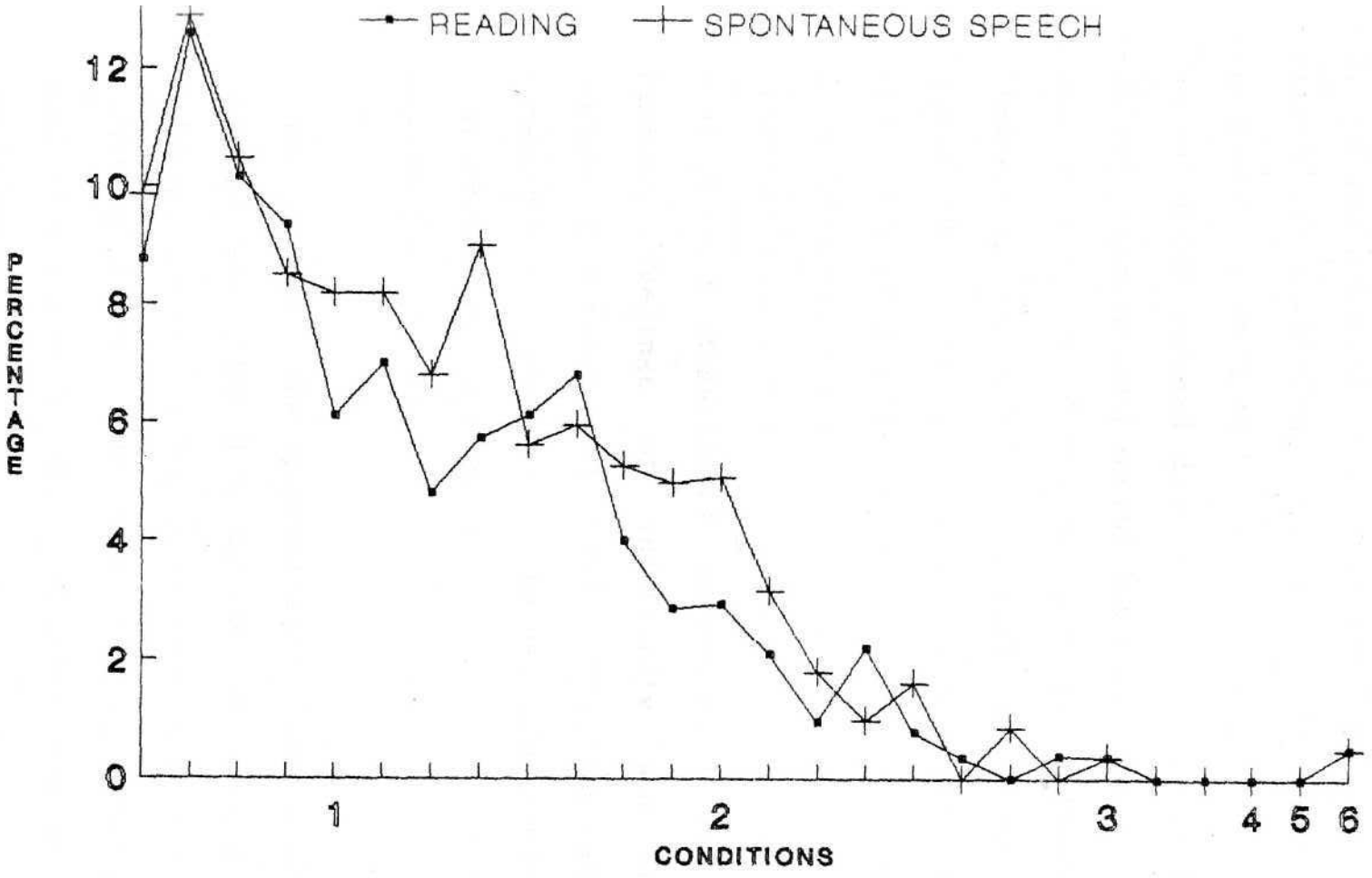

FIGURE 19: Percentage of Stuttering of N.S. Conditions: 1.Base Line, 2.Progressive Muscular Relaxation, 3.Rhythmic Speech, 4.Assertive Technique, 5.After Therapy, 6.Follow-up.
The points between conditions on X-axis indicate number of sessions.

Table.10 and Figure.20 present a comparison of scores of N.S. on psychological tests, before and after therapy. A statistically significant change on S.C.I. was noticed, his score reduced from 72 to 27 (X2 =20.45, P=0.00). Further the score on WPS-R reduced from 82 to 38 (X2=16.13, P=0.00), which indicated reduced social anxiety. The score on S.R.I. reduced from 11 to 7 (X2=0.89, P=0.34), indicating that he was internally controlled. No significant change was noticed on E.P.I. The score on neuroticism reduced from 18 to 11 (X2=1.69, P=0.19) and the score on extraversion increase from 6 to 11 (X2=1.47, P=0.22). The change in scores though were not statistically significant were of clinically importance. A statistically significant improvement was noticed on depression, feelings of inferiority and interpersonal communication disorders of S.T.I. This indicated that the case gained more confidence and he was emotionally stable and his interpersonal communication was improved and his depressive features were reduced.

In general, the psychological test scores before therapy indicated that N.S. was an introverted person with neuroticism, internal locus of control, high social anxiety, low self confidence, features of depression, emotional instability and poor interpersonal communication. The scores on psychological test after therapy indicated presence of introversion, reduction in social anxiety, reduction in

TABLE 10

Presents the scores of N.S. on Pyschological tests before and after therapy.

Test	Before Therapy	After Therapy	X2 value	P value
1) S.C.I.	72	27	20.45	0.0000 *
2) WPS-R	82	38	16.13	0.0001 *
3) S.R.I.	11	7	0.89	0.3458
4) E.P.I.:				
a) Neuroticism	18	11	1.69	0.1936
b) Extroversion	6	11	1.47	0.2253
5) S.T.I.:				
a) Activity	14	26	3.60	0.0578
b) Cyclothymia	10	16	1.38	0.2393
c) Depression	26	10	7.11	0.0077 *
d) Emotional Instability	22	16	0.95	0.3304
e) Introversion	26	6	12.50	0.0004 *
f) Feelings of inferiority	22	10	4.50	0.0339 *
g) Psychosomatic disorders	0	0	0	0 *
h) Interpersonal Communication disorders	24	6	10.80	0.0010 *

* = Statistically significant

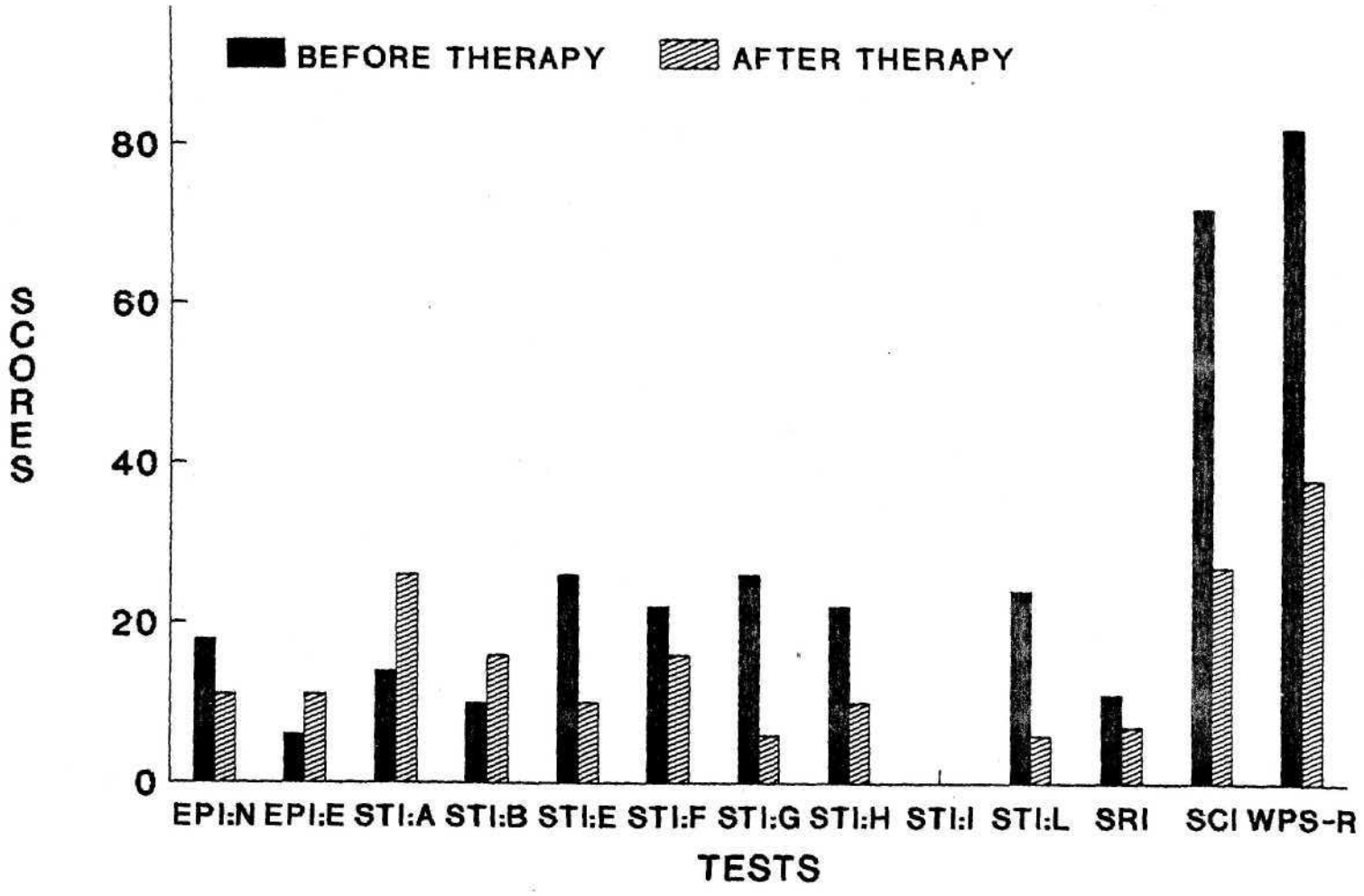

FIGURE 20: Personality scores of N.S. E.P.I.=Eysenck Personality Inventory, N=Neuroticism, E=Extraversion, S.T.I.=Surface Trait Inventory, A=Activity, B=Cyclothymia, E=Depression, F=Emotional instability, G=Introversion, H=Feeling of inferiority, I=Psychosomatic Disorders, L=Interpersonal Communication Disorders, S.C.I.=Self Confidence Inventory, S.R.I.=Social Reaction Inventory, WPS-R=Revised Willoughby Questionnaire.

depression, emotionally stable, reduced feelings of inferiority and improved interpersonal communication. There was a significant change in the speech of N.S. with R.S.T. and assertion training. Generalization procedures helped him to increase his self confidence, improved interpersonal communication and maintain his fluency.

It was attempted to followup N.S. at the end of first month, third month and after six months. He was available only for second followup session and he maintained fluency.

CASE 11

D.A.S., a Twenty four years old male was from a rural area with B.com degree. The case reported that the stuttering started when he was four year of age. According to D.A.S. his stuttering aggravating stimuli were: starting conversation with strangers, customers and senior officers. He developed inferiority feelings and felt sad and depressed.

The speech of the case consisted of repetitions and prolongations. The secondaries consisted of tension in the body and blinking of eyes.

The response pattern of D.A.S. to treatment is shown in Figure.21. The figure indicated that the case D.A.S. had not showed a considerable improvement with P.M.R. therapy. At the end of eight sessions of P.M.R. his stuttering was 8.14% SS in reading and 10.64% SS in spontaneous speech. But figure shows considerable reduction in his stuttering with R.S.T. and at the eighth session of R.S.T. his stuttering reduced to 0 in reading and spontaneous speech. However, as D.A.S. reported lack of confidence in meeting the strangers, Assertive Training was introduced and his speech fluency continued to be good in both reading and spontaneous speech. It was seen that the generalization procedure had helped him to maintain his fluency outside the clinic. His rate of

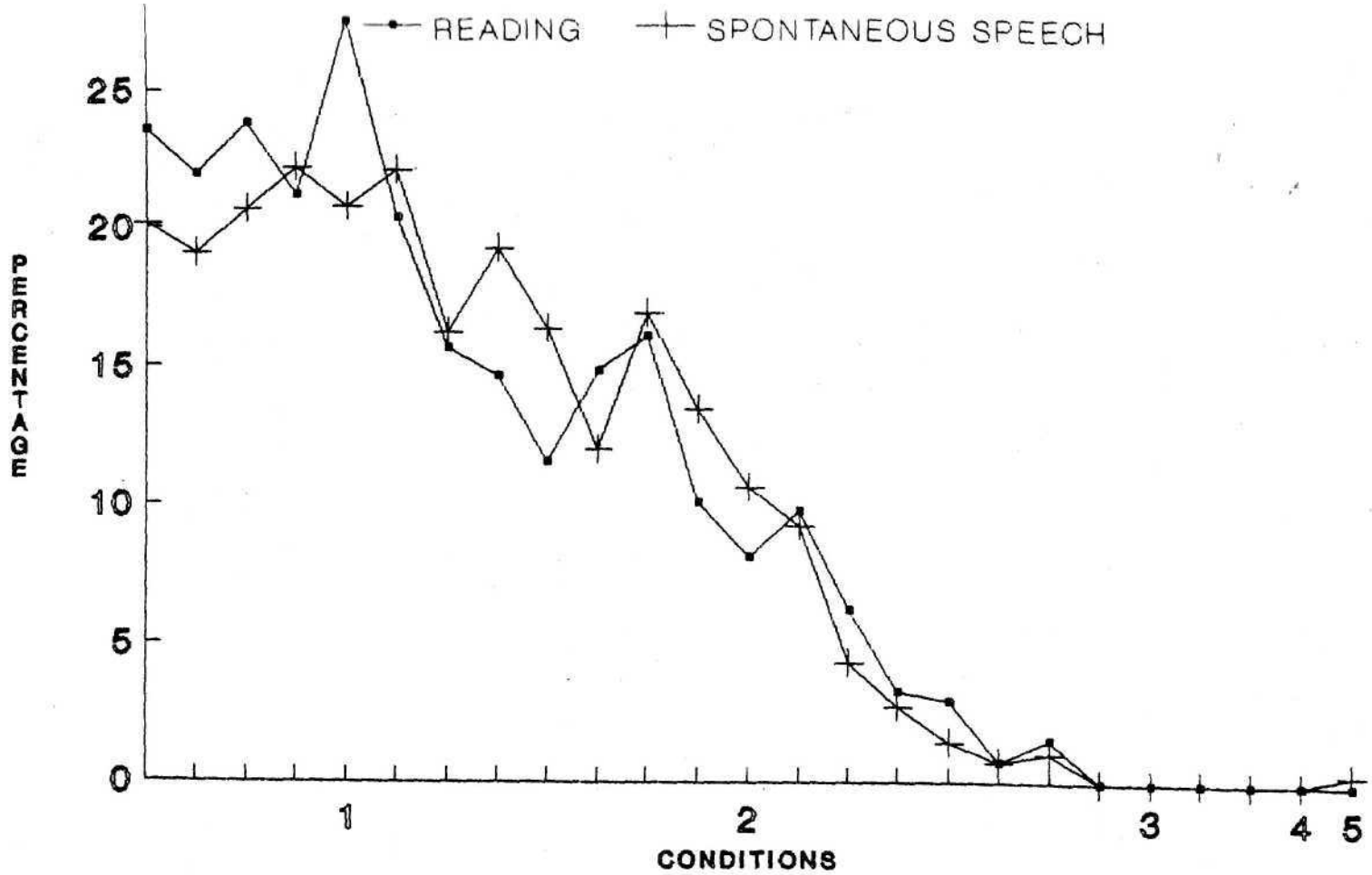

FIGURE 21: Percentage of Stuttering of D.A.S. Conditions: 1.Base Line, 2.Progressive Muscular Relaxation, 3.Rhythmic Speech, 4.Assertive Technique, 5.After Therapy.
The points between conditions on X-axis indicate number of sessions.

speech after therapy had increased when compared to his base rate i.e., 205 SPM and 195 SPM in reading and spontaneous speech respectively.

Table.11 and Figure.22 present a comparison of scores of D.A.S. on psychological tests, before and after therapy. No significant reduction on score on S.C.I, was noticed, his score reduced from 56 to 49, (X2 =0.47, P=0.49). Further the score on WP5-R reduced from 36 to 11 (X2=30.30, P=0.00), which indicated the reduced social anxiety. No statistically significant improvement on S.R.I. was noticed (X2=0.66, P=0.41), the scores reduced from 14 to 10 which indicated that the case moved from external locus of control to internal locus of control. Further significant change was noticed on E.P.I., the scores on neuroticism reduced from 18 to 5, (X2=7.35, P=0.00). The score on cyclothymia of S.T.I, was increased from 16 to 24 (X2=1.60, P=0.20) which suggested that the case moved from introversion to extraversion. This inconsistent response of the case was not clinically accountable. A statistically significant improvement was noticed on depression, emotional instability, feelings of inferiority and interpersonal communication disorders of S.T.I. The scores on depression reduced from 16 to 6 (X2=4.54, P=0.03) and also the score on emotional instability reduced from 22 to 2 (X2=16.67, P=0.00). Further the scores on feelings of inferiority and interpersonal communication disorders were reduced from 18 to 6 and 18 to 4 respectively.

TABLE 11

Presents the scores of D.A.S. on Pyschological tests before and after therapy.

Test	Before Therapy	After Therapy	X2 value	P value	
1) S.C.I.	56	49	0.47	0.4945	*
2) WPS-R	36	11	13.30	0.0003	*
3) S.R.I.	14	10	0.66	0.4142	
4) E.P.I.:					
a) Neuroticisrm	18	5	7.35	0.0067	*
b) Extroversion	14	10	0.66	0.4142	
5) S.T.I.:					
a) Activity	24	30	0.67	0.4142	
b) Cyclothymia	16	24	1.60	0.2059	
c) Depression	16	6	4.54	0.0330	*
d) Emotional Instability	22	2	16.67	0.0000	*
e) Introversion	22	4	22.46	0.0004	*
f) Feelingsof inferiority	18	6	6.00	0.0143	*
g) Psychosomatic disorders	12	4	4.00	0.0455	*
h) Interpersonal Communication disorders	18	4	8.91	0.0028	*

* = Statistically significant

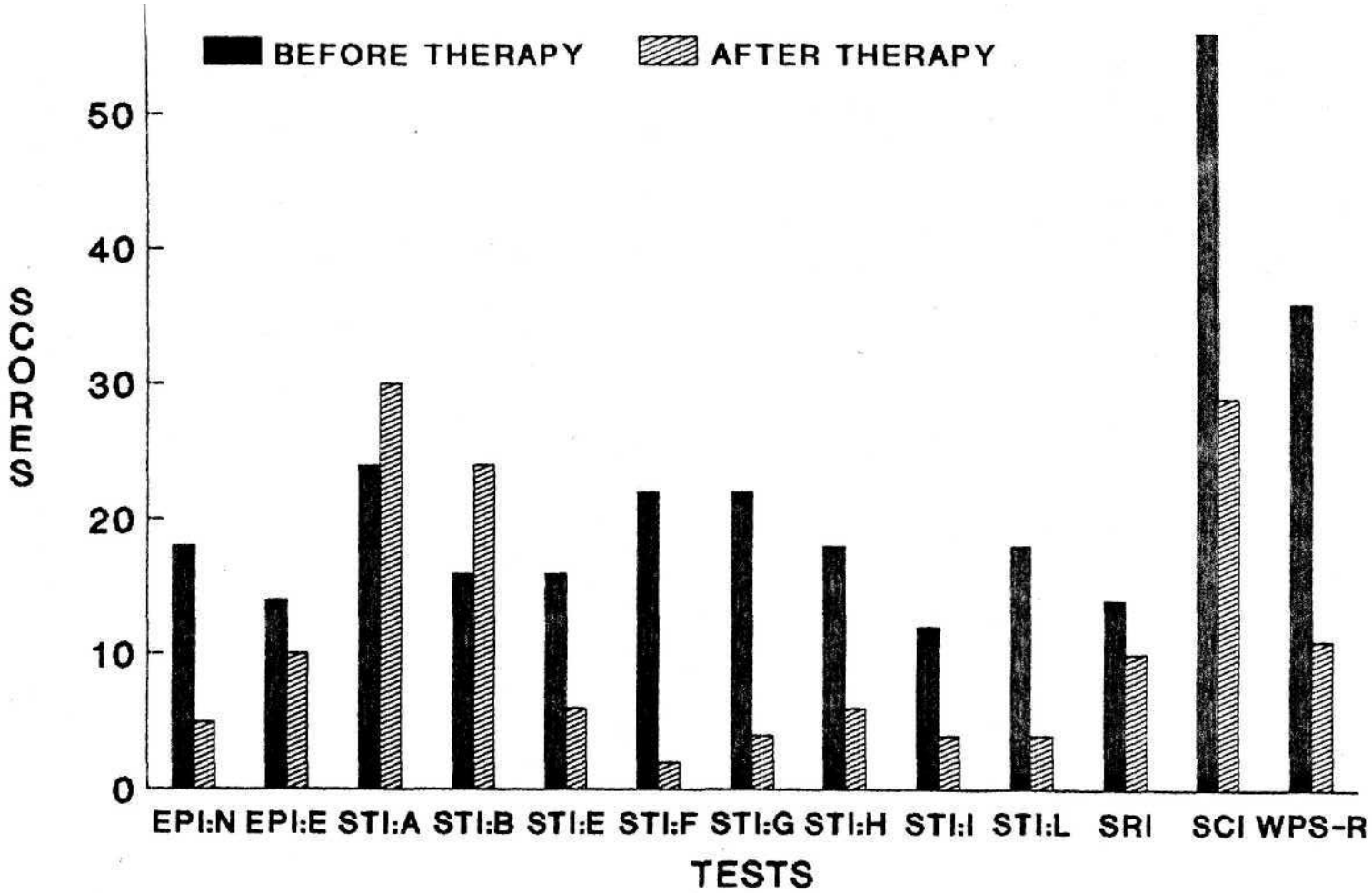

FIGURE 22: Personality scores of D.A.S. E.P.I.=Eysenck Personality Inventory, N=Neuroticism, E=Extraversion, S.T.I.=Surface Trait Inventory, A=Activity, B=Cyclothymia, E=Depression, F=Emotional instability, G=Introversion, H=Feeling of inferiority, I=Psychosomatic Disorders, L=Interpersonal Communication Disorders, S.C.I.=Self Confidence Inventory, S.R.I.=Social Reaction Inventory, WPS-R=Revised Willoughby Questionnaire.

This indicated that the case gained more confidence and he was emotionally stable and his interpersonal communication was improved.

In general, the psychological test scores before therapy indicated that D.A.S. had neuroticism, low self confidence, emotional instability, poor interpersonal communication and had external locus of control. The scores on psychological tests after therapy indicated that he moved towards introversion, reduction in social anxiety, reduction in depression, emotional instability, reduced feelings of inferiority and improved interpersonal communication. Figure indicated that P.M.R. had not brought significant change in the speech of D.A.S. after eight sessions of therapy. Further, there was a significant change in the speech of D.A.S. with rhythmic speech technique and assertive training. Generalization procedures also helped him to increase his self confidence, improved interpersonal communication and to maintain his fluency. The post therapy scores of personality tests indicated positive changes in personality of D.A.S.

It was attempted to followup D.A.S. at the end of first month, third month and after six months. But D.A.S. was not available for further followup sessions.

CASE 12

M.N.S. was a Twenty one years old male from a rural area with engineering degree. The case reported that the stuttering started when he was eleven year of age. According to M.N.S. his stuttering aggravating stimuli were: starting conversation with strangers, in attending seminars, interviews and speaking to senior officers. He developed inferiority feelings and felt sad and disgusted in life.

The speech of the case consisted of repetitions and prolongations. The secondaries consisted of tension in the body pursing of the lip, blinking of eyes, sweating all over the body and hand movement.

The response pattern of M.N.S. to treatment is shown in Figure.23 The figure indicated that the case M.N.S. had showed considerable improvement after eight sessions with P.M.R. therapy (2.22% SS in reading and 5.04% SS in spontaneous speech). However he did not reach the clinical criteria of 98%. Hence, he was put on R.S.T. for eight sessions which significant reduced his stuttering completely by eight session.

However, as M.N.S. reported lack of confidence in meeting the strangers, Assertive Training was administered. His speech fluency continued to be good in both reading and spontaneous speech and stuttering reduced to 0 in reading but increased to 0.37% SS in spontaneous speech. It was also seen that the generalization procedure had helped him to maintain

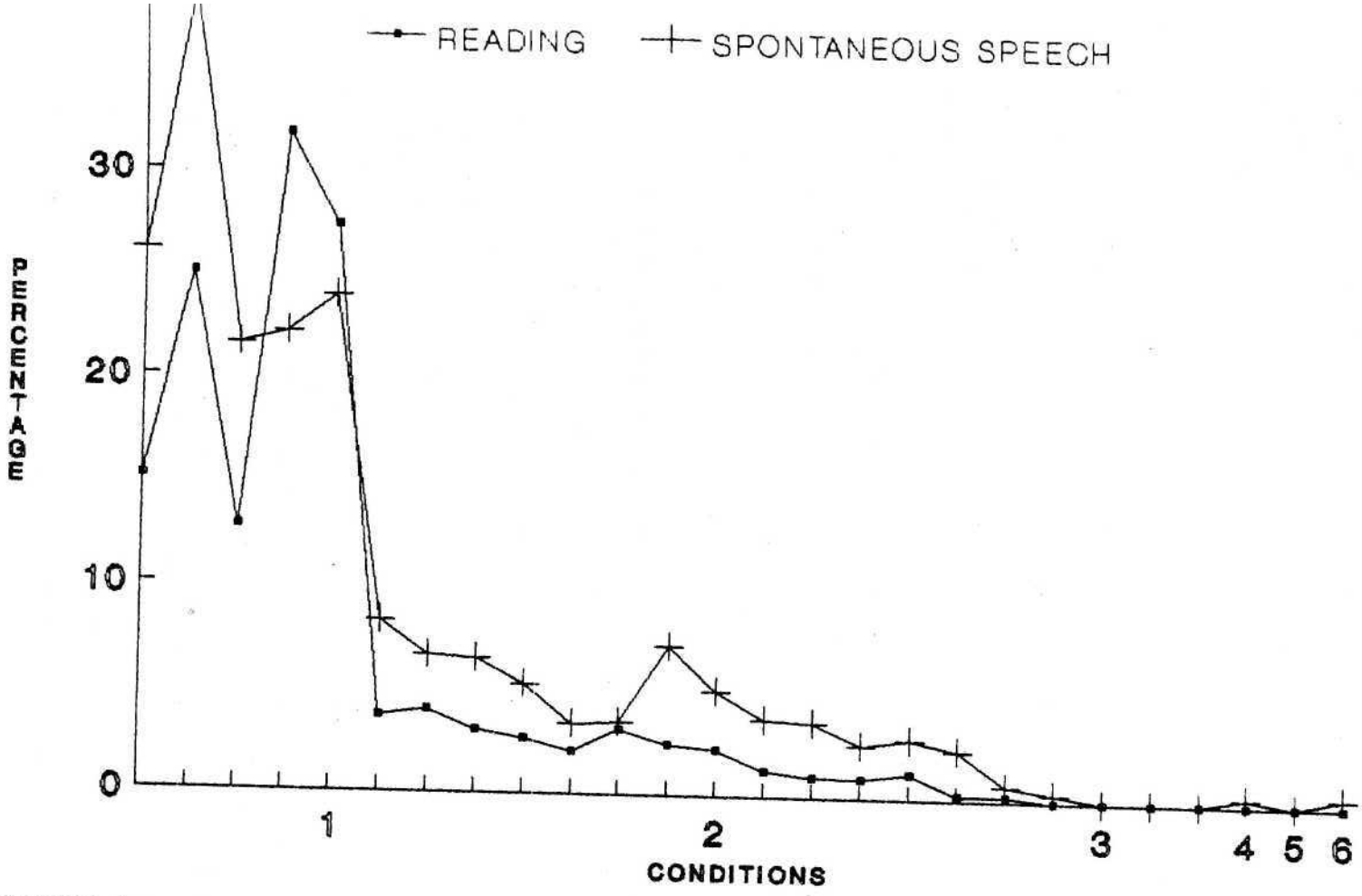

FIGURE 23: Percentage of Stuttering of M.N.S. Conditions: 1.Base Line, 2.Progressive Muscular Relaxation, 3.Rhythmic Speech, 4.Assertive Technique, 5.After Therapy, 6.Follow-up..
The points between conditions on X-axis indicate number of sessions.

his fluency outside the clinic. His rate of speech after therapy had increased to 215 SPM and 212 SPM in reading and in spontaneous speech respectively.

Table.12 and Figure.24 present a comparison of scores of D.A.S. on psychological tests, before and after therapy. No significant reduction of score on S.C.I, was noticed. WPS-R scores reduced significantly from 60 to 6 (X2=44.18, P=0.00), indicating his social anxiety was reduced. The scores on S.R.I, remained the same indicates that he was externally controlled. A significant change was noticed on E.P.I., the scores on neuroticism reduced from 21 to 6, (X2=8.33, P=0.00) which shows reduction in neuroticism. The reduction of scores on extraversion scale indicated that the case moved towards introversion. The score on cyclothymia of S.T.I, was also reduced from 14 to 6 (X2=3.2, P=0.07) which suggested that the case moved towards introversion. A statistically significant improvement was noticed on depression, emotional instability, feelings of inferiority and interpersonal communication disorders of Surface Trait Inventory. The scores on depression reduced from 20 to 10 (X2=3.33, P=0.06) and also the score on emotional instability reduced from 24 to 6 (X2=10.8, P=0.00). Further the scores on feelings of inferiority and interpersonal communication disorders were reduced from 22 to 4 and 24 to 0 respectively. This indicated that the case gained more confidence and he was emotionally stable and his interpersonal communication was

TABLE 12

Presents the scores of M.N.S. on Pyschological tests before and after therapy.

Test	Before Therapy	After Therapy	X2 value	P value	
1) S.C.I.	28	29	0.02	0.8946	*
2) WPS-R	60	6	44.18	0.0000	*
3) S.R.I.	12	12	0.00	1.0000	*
4) E.P.I.:					
a) Neuroticism	21	6	8.33	0.0039	*
b) Extroversion	14	8	1.64	0.2008	*
5) S.T.I.:					
a) Activity	*20*	*22*	*0.09*	0.7576	
b) Cyclothymia	14	6	3.20	0.0736	*
c) Depression	20	10	3.33	0.0679	*
d) Emotional Instability	24	6	10.80	0.0010	*
e) Introversion	24	2	18.61	0.0000	*
f) Feelings of inferiority	22	4	12.46	0.0004	*
g) Psychosomatic disorders	10	2	5.33	0.0209	*
h) Interpersonal Communication disorders	24	0	24.00	0.0000	*

* = Statistically significant

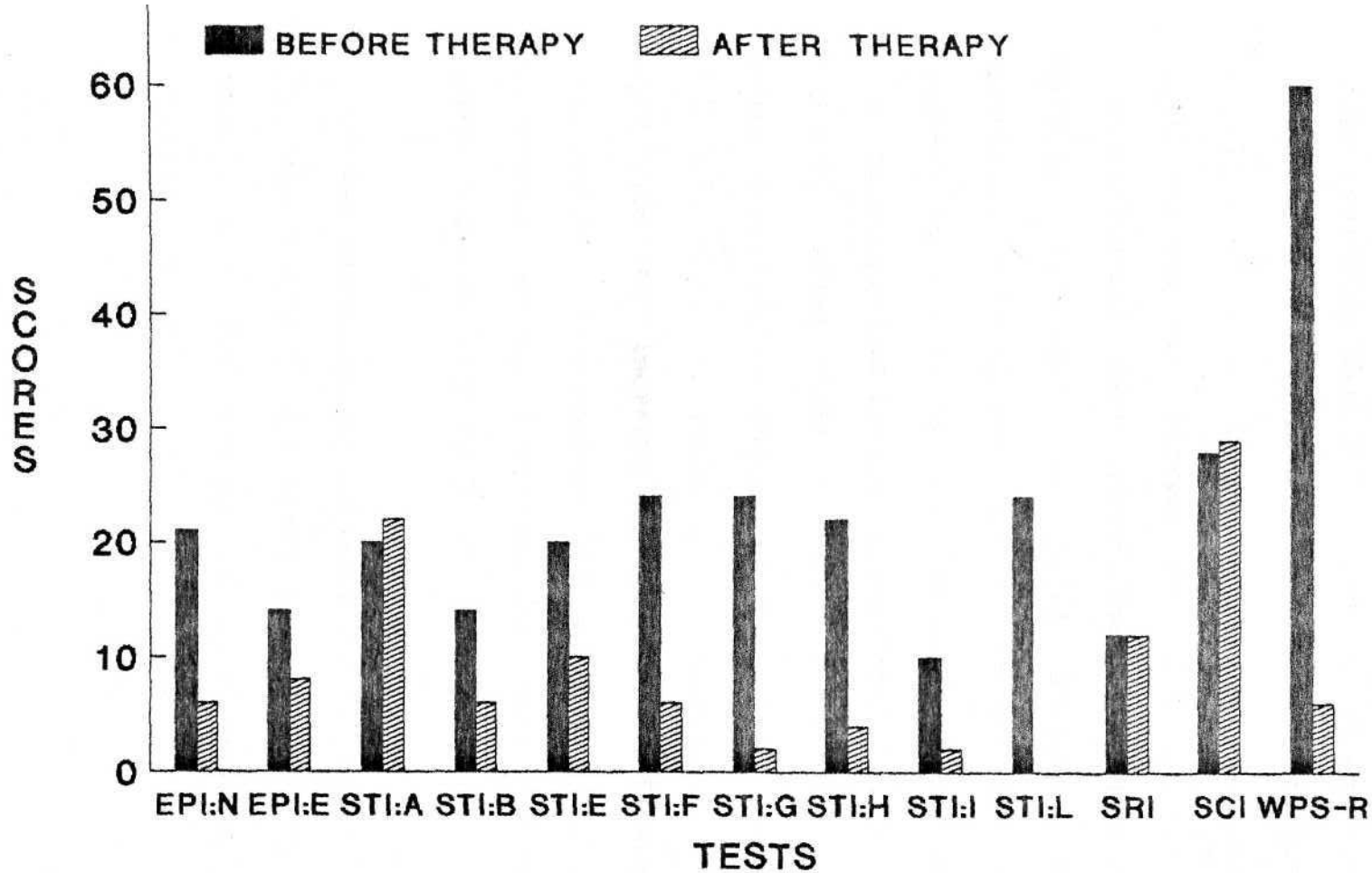

FIGURE 24: Personality scores of M.N.S. E.P.I.=Eysenck Personality Inventory, N=Neuroticism, E=Extraversion, S.T.I.=Surface Trait Inventory, A=Activity, B=Cyclothymia, E=Depression, F=Emotional instability, G=Introversion, H=Feeling of inferiority, I=Psychosomatic Disorders, L=Interpersonal Communication Disorders, S.C.I.=Self Confidence Inventory, S.R.I.=Social Reaction Inventory, WPS-R=Revised Willoughby Questionnaire.

In general, the psychological test scores before therapy indicated that M.N.S. was an introverted person with neuroticism, external locus of control, high social anxiety, low self confidence, having depressive features, emotional instability and poor interpersonal communication. The scores on psychological test after therapy indicated emotional stability, reduction in social anxiety, reduction in depression, reduced feelings of inferiority and improved interpersonal communication. As noticed in the figure the P.M.B. technique had brought significant change in the speech of M.N.S. after eight sessions of therapy. There was a further considerable change in the speech of M.N.S. with R.S.T. and assertive techniques. Generalization procedures helped him to increase his self confidence, improved interpersonal communication and maintain his fluency. The post therapy scores of personality tests indicated positive changes in personality of M.N.S.

It was attempted to followup M.N.S. at the end of first month, third month, and after six month. But M.N.S. was available only for second followup session and he had maintained fluency.

CASE-13

B.M.H. a Twenty four years old male was from a rural area with a degree in Commerce. The case reported that the stuttering started when he was five year of age. According to B.M.H. the stuttering aggravating stimuli were: starting conversation with strangers, elder and to a group. He also had feelings of fear and shyness while speaking to others and avoids speaking to others anticipating stuttering.

The speech of the case consisted of repetitions and prolongations. The secondaries consisted of tension in the facial muscles and eye blinking.

The response pattern of B.M.H. to treatment is shown in Figure.25. Figure indicated that B.M.H. had not shown improvement in his speech with eight session of P.M.R. therapy. (9.13% SS in reading and 10.64% SS in spontaneous speech). Further his stuttering was not reduced even with R.S.T. after eight sessions (4.94% SS and 5.05% SS in reading and spontaneous speech respectively). B.M.H. had shown considerable improvement with prolongation therapy and his stuttering reduced to 2.5% SS in reading and 3.28% SS in spontaneous speech. As fluency criteria of 98% was not reached and he had hard contact, he was tried with air flow technique and his stuttering was reduced significantly.

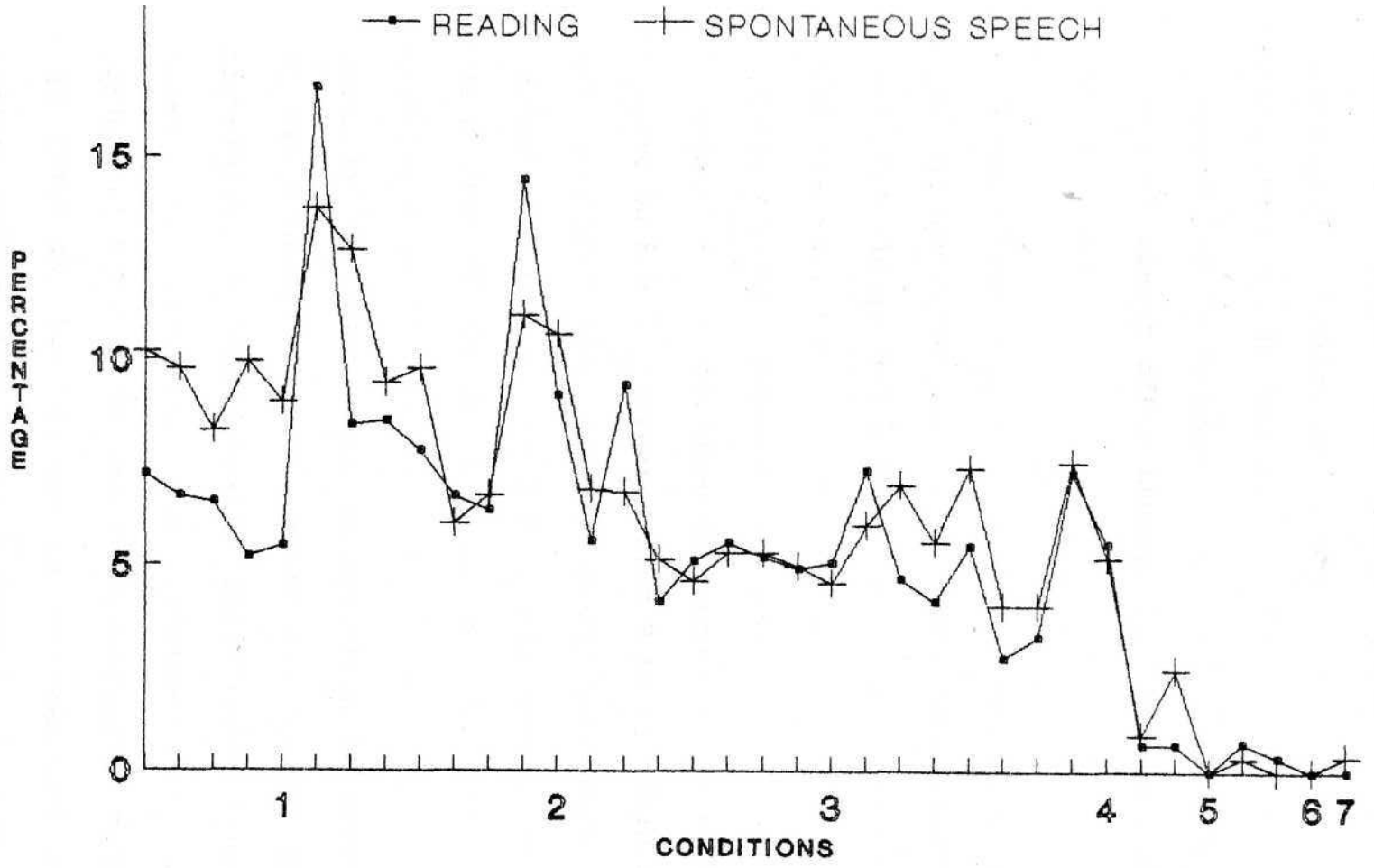

FIGURE 25: Percentage of Stuttering of B.M.H. Conditions: 1.Base Line, 2.Progressive Muscular Relaxation, 3.Rhythmic Speech, 4.Prolongation, 5.Air-flow, 6.Assertive Technique, 7.After Therapy.
The points between conditions on X-axis indicate number of sessions.

However, as B.M.H. reported difficulty in meeting the strangers, elders and group Assertive Training was administered. Stuttering reduced to 0 % both in reading and spontaneous speech. The generalization of fluency procedure had helped him to maintain his fluency outside the clinic. His rate of speech after therapy had increased when compared to his base rate.

Table-13 and Figure.26 present a comparison of scores of B.M.H. on psychological tests, before and after therapy. No significant change was noticed on S.C.I., his score remained almost the same i.e., 22 to 23 (X2 =0.02, P=0.88). Further the score on WPS-R reduced from 52 to 16 (X2=19.06, P=0.00), This reduced score indicated the reduction in social anxiety. The score on S.R.I, increased from 9 to 11 (X2=0.20, P=0.65), which indicated that he was still internally controlled. A change was noticed on E.P.I, the scores on neuroticism reduced from 18 to 10 (X2=2.28, P=0.13) and the score on extraversion scale reduced from 16 to 13 (X2=0.31, P=0.57). Clinically the improvement or reduction in scores indicated that his neuroticism had reduced and he had moved towards introversion. A statistically significant improvement was noticed on depression and interpersonal communication disorders of S.T.I. The scores on depression reduced from 26 to 18 (X2=1.45, P=0.22) and an interpersonal communication disorders reduced from 20 to 6 (X2=7.54, P=0.00). His score an emotional instability and feelings of inferiority had not changed much compared to before therapy.

TABLE 13

Presents the scores of B.M.H. on Pyschological tests before and after therapy.

Test	Before Therapy	After Therapy	X2 value	P value	
1) S.C.I.	22	23	0.02	0.8815	*
2) WPS-R	52	16	19.06	0.0000	*
3) S.R.I.	8	11	0.20	0.6547	
4) E.P.I.:					
a) Neuroticisrn	18	10	2.28	0.1306	
b) Extroversion	16	13	0.31	0.5775	
5) S.T.I.:					
a) Activity	22	24	0.08	0.7681	
b) Cyclothymia	24	18	0.86	0.3545	
c) Depression	26	18	1.45	0.2278	*
d) Emotional Instability	22	20	0.09	0.7576	
- e) Introversion	16	6	4.54	0.0330	
f) Feelings of inferiority	16	18	0.12	0.7316	*
g) Psychosomatic disorders	12	10	0.18	0.6698	
h) Interpersonal Communication disorders	20	6	7.54	0.0060	*

K = Statistically significant

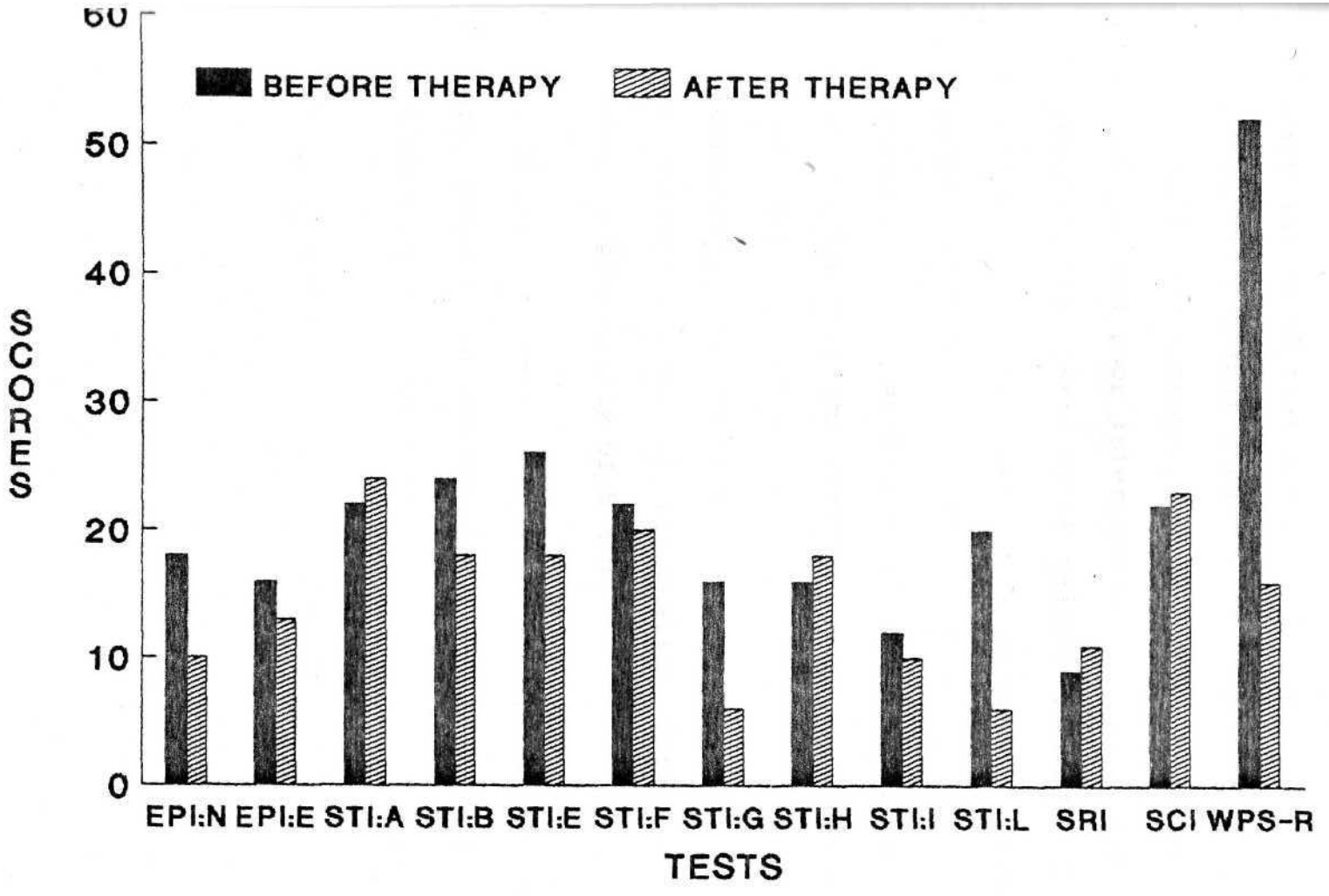

FIGURE 26: Personality scores of B.M.H. E.P.I.=Eysenck Personality Inventory, N=Neuroticism, E=Extraversion, S.T.I.=Surface Trait Inventory, A=Activity, B=Cyclothymia, E=Depression, F=Emotional instability, G=Introversion, H=Feeling of inferiority, I=Psychosomatic Disorders, L=Interpersonal Communication Disorders, S.C.I.=Self Confidence Inventory, S.R.I.=Social Reaction Inventory, WPS-R=Revised Willoughby Questionnaire.

In general, the psychological test scores before therapy indicated that B.M.H. was an extraverted person with neuroticism, internal locus of control, high social anxiety, low self confidence, depressive features, emotional instability and poor interpersonal communication. The scores on psychological tests after therapy indicated introversion, reduction in social anxiety, reduction in depression and improved interpersonal communication. B.M.H. had shown improvement with prolongation and air flow techniques. Assertive training and generalization of fluency procedures helped him to increase his self confidence, improved interpersonal communication and maintain his fluency. The post therapy scores of personality tests indicated some changes in personality of B.M.H.

It was attempted to followup B.M.H.. at the end of first month, third month and after six months. But B.M.H. was not available for followup sessions.

CASE 14

A.P.A., a twenty three years old male was from a rural area with a Diploma in Engineering. The case attributed his problem to his neighbour who informed that APA could not speak well, and that he was a stutterer. Then onwards his problem increased. According to A.P.A. the stuttering aggravating stimuli were: talking to his parents, elders, strangers and teachers. He stuttered while speaking to strangers and to groups. He felt tension during interviews. The speech of the case consisted of repetitions, prolongations and hard contact.

The response pattern of A.P.A. to treatment is shown in Figure.27 Figure indicated that A.P.A. showed significant improvement with P.M.R. therapy after eight sessions. His stuttering reduced to 4.4 % SS in reading and 3.8 % SS in spontaneous speech. Since, there was no further improvement in his speech, A.P.A. was tried on R.S.T. but he had not reached fluency criteria of 98% with R.S.T.. Hence, he was tried on prolongation technique and stuttering reduced gradually by the end of the eight sessions. His stuttering reduced to 2.12% in reading and 2.57% in spontaneous speech. However, as he had hard contact and had not reached fluency criteria of 98% he was tried on airflow technique where his stuttering reduced to 1.36% in reading and 1.18,% in spontaneous speech.

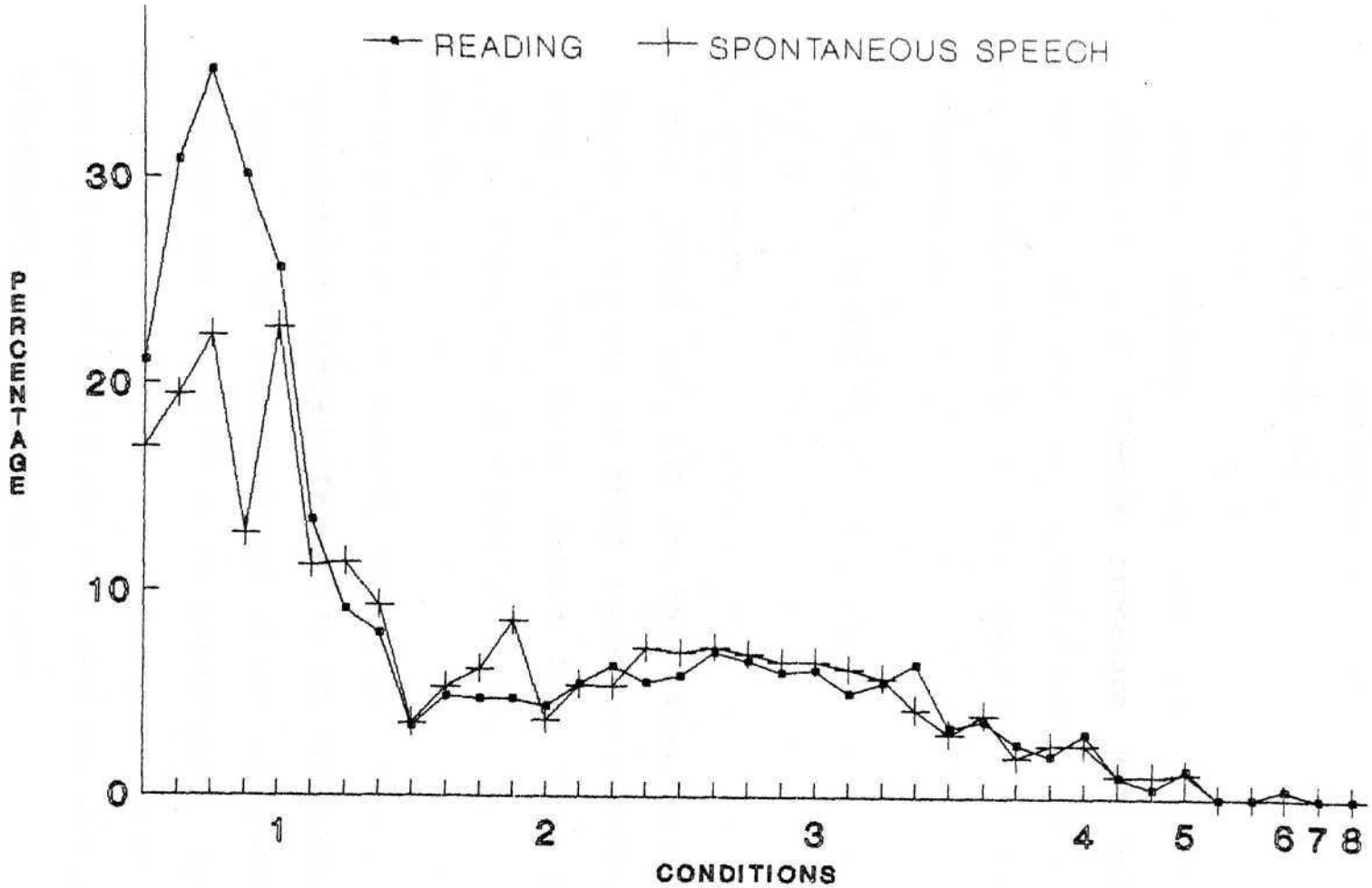

FIGURE 27: Percentage of Stuttering of A.P.A. Conditions: 1.Base Line, 2.Progressive Muscular Relaxation, 3.Rhythmic Speech, 4.Prolongation, 5.Air-flow, 6.Assertive Technique, 7.After Therapy, 8.Follow-up.
The points between conditions on X-axis indicate number of sessions.

Assertive training was administered on A.P.A. as he reported lack of confidence in meeting the strangers, and tension during interview. His stuttering reduced completely and speech fluency continued to be good in both reading and spontaneous speech. It was also seen that the generalization of fluency procedure had helped him to maintain his fluency outside the clinic. His rate of speech after therapy had increased to 206 5PM in reading 204 SPM in spontaneous speech.

Table -14 and Figure.28 present a comparison of scores of A.P.A. on psychological tests, before and after therapy. His scores on S.C.I, reduced from 76 to 38 (X2 = 12.67, P=0.00), indicating that he had gained more confidence. Similarly his score on WPS-R indicated reduction in social anxiety i.e., the score reduced from 56 to 14 (X2=25.2, P=0.00). There was no significant reduction in the score on Social Reaction Inventory (X2=n.037, p=o.84), which indicated that he was still externally controlled. On E.P.I, the score on extraversion reduced, from 17 to 12, (X2=0.86, P=0.35) and the neuroticism score remained almost same which indicated that there was no reduction in neuroticism. There was some improvement in feeling of inferiority with the scores reducing from 28 to 18 (X2=2.17, P=0.14) and no change in interpersonal communication disorders.

TABLE 14

Presents the scores of A.P.A. on Pyschological tests before and after therapy.

Test	Before Therapy	After Therapy	X2 value	P value
1) S.C.I.	76	38	12.67	0.0004 *
2) WPS-R	56	14	25.20	0.0000 *
3) S.R.I.	14	13	0.03	0.8474
4) E.P.I.:				
a) NeuroticiSro	19	18	0.027	0.8694
b) Extroversion	17	12	0.86	0.3532
5)S.T.I.:				
a) Activity	24	24	1.00	1.0000 *
b) Cyclothymia	24	18	0.86	0.3645
c) Depression	22	16	0.95	0.3304
d) Emotional Instability	22	20	0.78	0.3763
e) Introversion	20		5.14	0.0233 *
f) Feelingsof inferiority	28	18	2.17	0.1404 *
g) Psychosomatic disorders	8	8	1.00	1.0000 *
h) Interpersonal Communication disorders	16	16	1.00	1.0000 *

* # Statistically significant

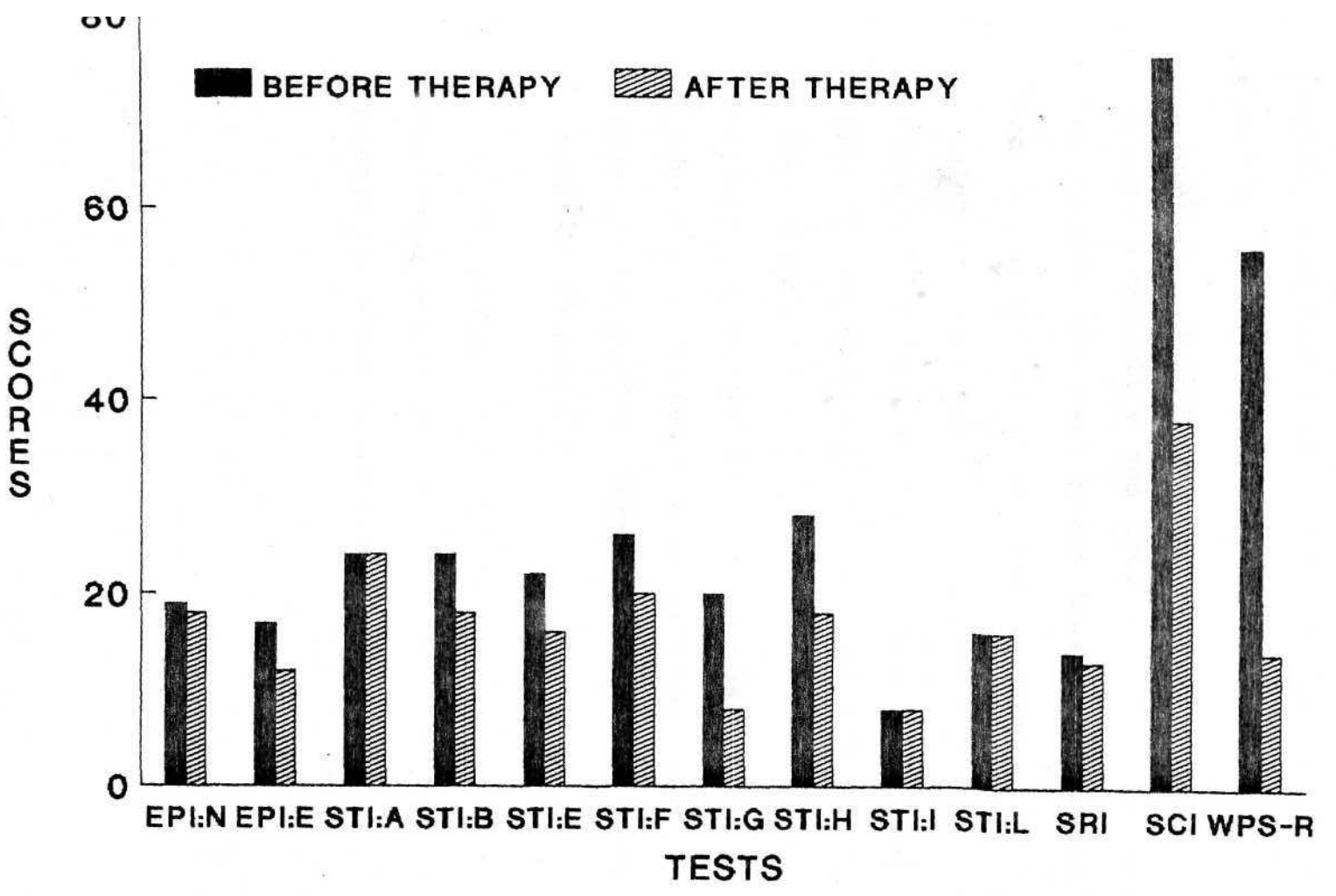

FIGURE 28: Personality scores of A.P.A. E.P.I.=Eysenck Personality Inventory, N=Neuroticism, E=Extraversion, S.T.I.=Surface Trait Inventory, A=Activity, B=Cyclothymia, E=Depression, F=Emotional instability, G=Introversion, H=Feeling of inferiority, I=Psychosomatic Disorders, L=Interpersonal Communication Disorders, S.C.I.=Self Confidence Inventory, S.R.I.=Social Reaction Inventory, WPS-R=Revised Willoughby Questionnaire.

In general, the psychological test scores before therapy indicated that A.P.A. was an extraverted neurotic with high social anxiety, low self confidence, external locus of control, depressive tendency, inferiority feeling, emotional instability and poor interpersonal communication. After therapy the case moved towards introversion, but his score on neuroticism had not changed. The score also indicated reduction in social anxiety and improvement in self confidence. The figure shows that P.M.R. had brought some changes in the speech of A.P.A. Further, there was a change in the speech of A.P.A. with prolongation and Airflow techniques. Assertive training and Generalization of fluency procedures also helped him to increase his self confidence, improve interpersonal communication and also helped to maintain his fluency.

It was attempted to followup A.P.A. at the end of first month, third month and at the end of sixth month. He was available for second followup.

CASE 15

A.R.H., a twenty one years old male was from an urban area with Commerce degree. The case reported that the stuttering started when he was six years of age with a gradual onset. Stuttering was more during his school days. According to A.R.H., his stuttering aggravating stimuli were: starting conversation with strangers and senior officers. He stuttered more when excited or during the time of making enquires.

The speech of the case consisted of repetitions and prolongations. Secondary characters like tensing the neck muscles and blinking of eyes were noticed. Table-3 Presents the scores of the case on psychological tests before and after therapy.

Figure.29 illustrate that A.R.H. had not showed significant improvement with P.M.R. therapy even after eight sessions (12.23% in reading and 12.73 in spontaneous speech). As no significant change in speech was noticed even after eight sessions of P.M.R., A.R.H. was tried on R.S.T. for eight sessions and he had not reached fluency criteria of 98% both in reading and spontaneous speech. He was tried on prolongation technique and the stuttering reduced gradually by the end of eight sessions. His stuttering reduced to 1.11% in reading and 0.69% in spontaneous speech. However, as he

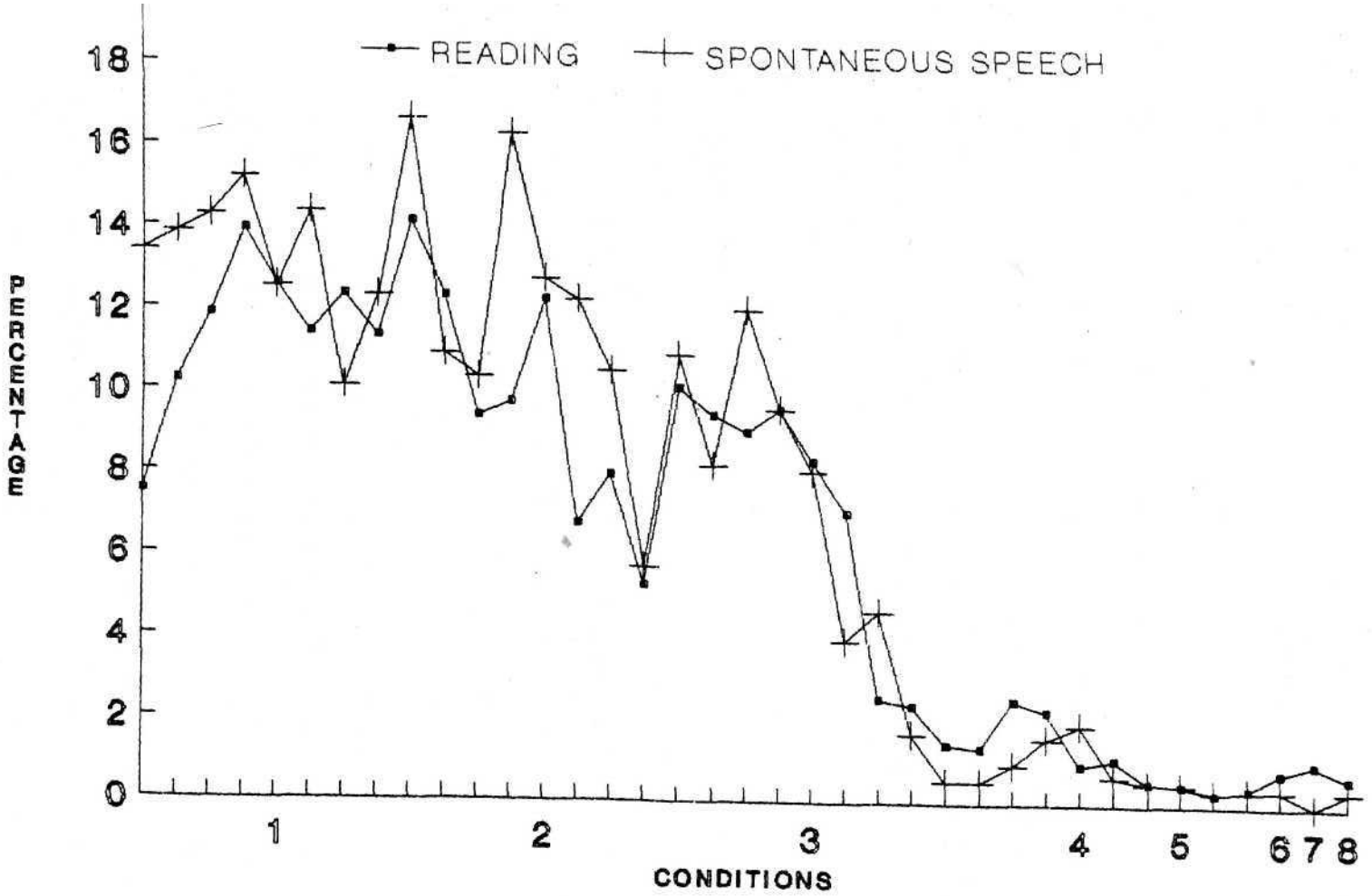

FIGURE 29: Percentage of Stuttering of A.R.H. Conditions: 1.Base Line, 2.Progressive Muscular Relaxation, 3.Rhythmic Speech, 4.Prolongation, 5.Air-flow, 6.Assertive Technique, 7.After Therapy, 8.Follow-up.
The points between conditions on X-axis indicate number of sessions.

had hard contact and there was still some dysfluency, he was tried on airflow technique and his stuttering was reduced to 0.61% in reading and 0.3% in spontaneous speech.

However, as A.R.H. reported lack of confidence in meeting the strangers and senior officers, Assertive training was administered. His fluency continued to be good both in reading and spontaneous speech, but it had not reduced to 0 either in reading or in spontaneous speech. It can also be seen from the figure that the generalization of fluency procedure had helped him to maintain his fluency outside the clinic . His rate of speech after therapy had increased to 211 SPM and 218 SPM in reading and spontaneous speech respectively compared to base rate i.e., 175 SPM in reading and spontaneous speech respectively .

Table-15 and Figure.30 present a comparison of scores of A.R.H. on psychological tests, before and after therapy. His scores on S.C.I. reduced significantly (X2=11.57, P=0.00), indicating that he had gained more confidence. Similarly his scores on WPS-R indicated reduction in social anxiety . There was no significant reduction in the score of S.R.I. (X2=0.243, P=0.62), which indicated that he was still externally controlled. On E.P.I, the scores on extraversion scale increased from 17 to 21, (X2=0.42, P=0.51) and also the neuroticism score reduced from 14 to 7 (X2=2.33, P=0.12) which indicated reduction in neuroticism. Similarly no statistically significant change was seen in the scores on

TABLE 15

Presents the scores of A.R.H. on Pyschological tests before and after therapy.

Test	Before Therapy	After Therapy	X2 value	P value
1) S.C.I.	45	18	11.57	0.0007 *
2) WPS-R	35	20	4.07	0.0431 *
3) S.R.I.	20	17	0.24	0.6219
4) E.P.I.:				
a) Neuroticism	14	7	2.33	0.1266
b) Extroversion	17	21	0.42	0.5168
5) S.T.I.:				
a) Activity	18	28	2.17	0.1404
b) Cyclothymia	24	24	0.00	1.0000 *
c) Depression	16	10	1.38	0.2393
d) Emotional Instability	6	12	2.00	0.1573 *
e) Introversion	6	6	1.00	0.0000 *
f) Feelings of inferiority	16	6	4.54	0.0330 *
g) Psychosomatic disorders	6	0	6.00	0.0143 *
h) Interpersonal Communication disorders	14	2	9.00	0.0027 *

* = Statistically significant

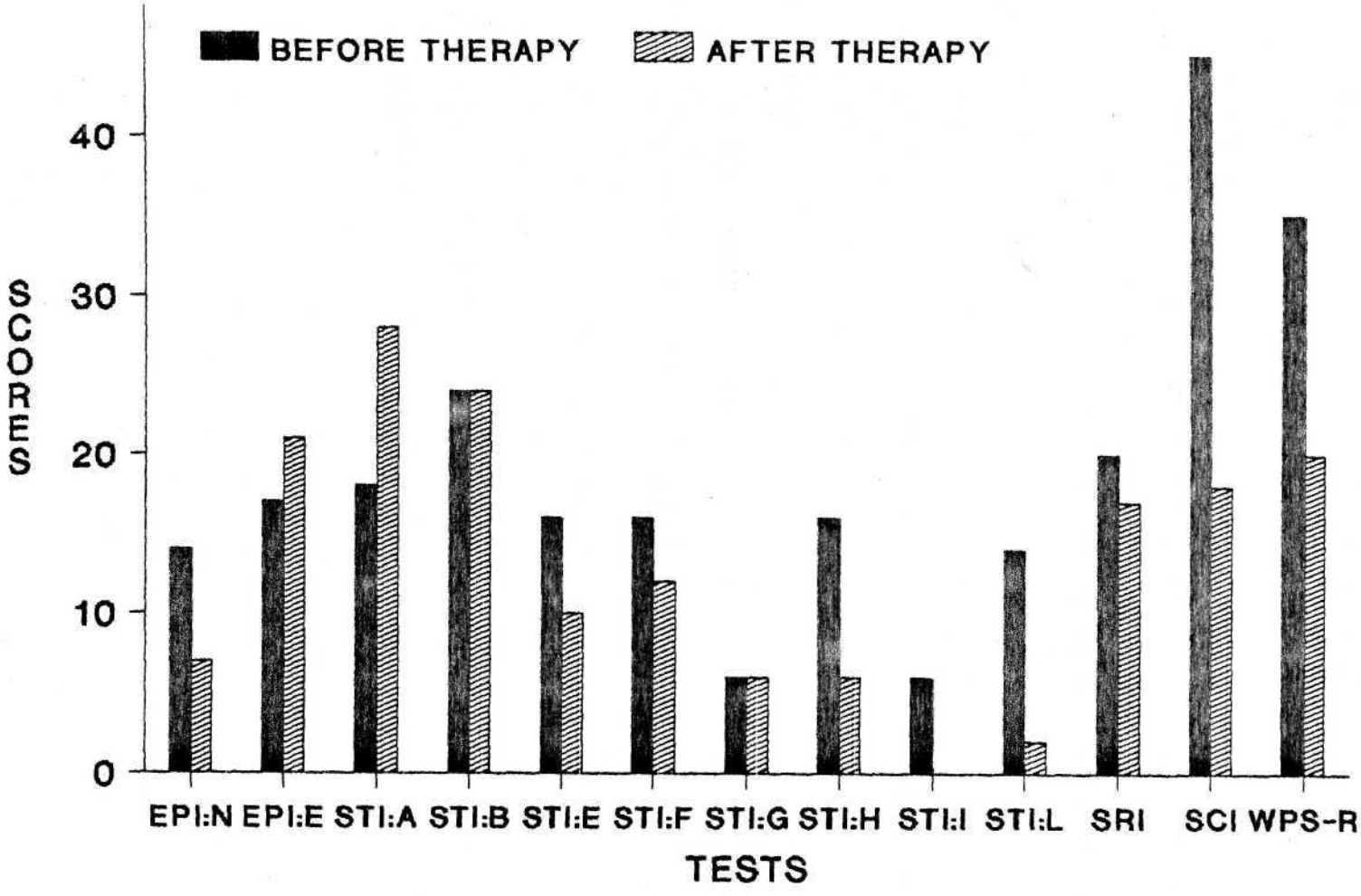

FIGURE 30: Personality scores of A.R.H. E.P.I.=Eysenck Personality Inventory, N=Neuroticism, E=Extraversion, S.T.I.=Surface Trait Inventory, A=Activity, B=Cyclothymia, E=Depression, F=Emotional instability, G=Introversion, H=Feeling of inferiority, I=Psychosomatic Disorders, L=Interpersonal Communication Disorders, S.C.I.=Self Confidence Inventory, S.R.I.=Social Reaction Inventory, WPS-R=Revised Willoughby Questionnaire.

cyclothymia and introversion scale of S.T.I.. There was a marked improvement on feeling of inferiority and in interpersonal communication disorders i.e., the scores reduced from 16 and 14 to 6 and 2 respectively (X2-4.54, P=0.03 and 9.00; P=0.00) which was statistically significant.

In general, the psychological test scores before therapy indicated that A.R.H. was an extraverted person with high social anxiety and low self confidence. The scores after therapy indicated extraversion, reduction in social anxiety, improved self confidence and interpersonal communication. The figure shows that there was a considerable change in the speech of A.R.H. only with the use of with prolongation and Airflow technique.

It was attempted to followup A.R.H. at the end of first month, second month, and third month. He was available for second followup which indicated that his fluency was maintained.

CASE 16

M.C.R. a seventeen years old male was from an urban area and studied upto 12th Std. The case reported that the stuttering started when he was eight year of age. According to M.C.R. the stuttering aggravating stimuli were: starting conversation with strangers and teachers in the class room.

The speech of the case consisted of repetitions and prolongations. The secondaries consisted of eye blinking and shaking of hands.

The response pattern of M.C.R. to treatment is shown in Figure.31. Eight sessions of P.M.R. therapy had not brought significant change in the speech of M.C.R. His stuttering reduced to 8.63% SS in reading and 10.61% SS in spontaneous speech. The figure also indicated that eight sessions of R.S.T. also had not brought any significant change in the speech of M.C.R. (11.5% SS in reading and 11.48% SS in spontaneous speech). M.C.R. had shown some improvement with prolongation therapy i.e., his stuttering reduced to 5.83% SS and 5.73% SS in reading and spontaneous speech respectively. As he had not reached the fluency criteria of 98% SS he was tried on airflow technique and his stuttering was reduced significantly both in reading and in spontaneous speech.

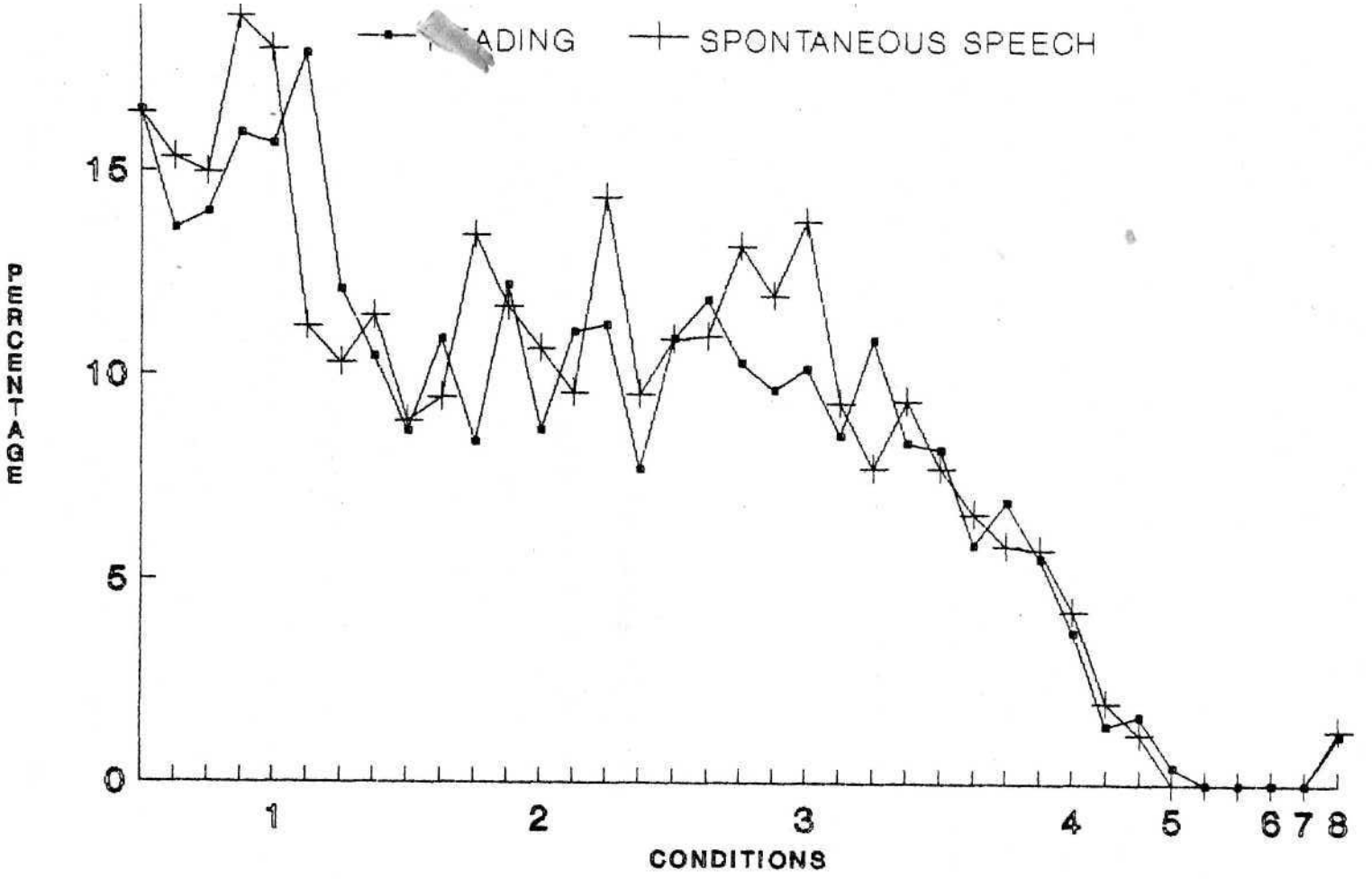

FIGURE 31: Percentage of Stuttering of M.C.R. Conditions: 1.Base Line, 2.Progressive Muscular Relaxation, 3.Rhythmic Speech, 4.Prolongation, 5.Air-flow 6.Assertive Technique, 7.After Therapy, 8.Follow-up.
The points between conditions on X-axis indicate number of sessions.

However, as M.C.R. reported lack of confidence in meeting the strangers and teachers in the class room, Assertive Technique was administered. His speech fluency continued to be good and stuttering reduced to 0.8% SS and 0.79% SS in reading and spontaneous speech. The generalisation of fluency procedure helped him to maintain his fluency outside the clinic. However, after therapy assessment of speech indicated that his stuttering increased to 0.8% SS in reading and 0.79% SS in spontaneous speech. His rate of speech had increased compared to his base rate i.e., 248 SPM and 252 SPM in reading and spontaneous speech respectively.

Table -16 and Figure.32 presents a comparison of scores of B.M.H. on psychological tests, before and after therapy. A significant change was noticed on S.C.I, and on WPS-R. His core reduced from 13 to 4 ($X2 = 4.76$, $P=0.02$) and 45 to 13 ($X2=17.69$, $P=0.00$) respectively. This reduced scores indicated that he had gained more confidence and his social anxiety had reduced. The scores on S.R.I, indicated that he was still internally controlled. On E.P.I., the scores on neuroticism reduced from 12 to 5 ($X2=2.88$, $P=0.08$) and the score on extraversion scale reduced from 18 to 12 ($X2=1.20$, $P=0.27$). Though the scores were not statistically significant, clinically it was noticed,that neuroticism had reduced and he had moved towards introversion. A significant improvement was noticed on interpersonal communication

TABLE 16

Presents the scores of M.C.R. on Pyschological tests before and after therapy.

Test	Before Therapy	After Therapy	X2 value	P value
1) S.C.I.	13	4	4.76	0.0290 *
2) WPS-R	45	13	17.65	0.0000 *
3) S.R.I.	6	7	0.67	0.7815
4)E.P.I.:				
a) Neuroticisrn	12	5	2.88	0.0896
b) Extroversion	18	12	1.20	0.2733
5) S.T.I.:				
a) Activity	22	24	0.08	0.7681
b) Cyclothymia	24	20	0.36	0.5465
c) Depression	12	12	0.00	1.0000
d) Emotional Instability	16	14	0.13	0.7150
e) Introversion	14	4	5.55	0.0184
f) Feelingsof inferiority	4	4	0.00	1.0000
g) Psychosomatic disorders	8	2	3.60	0.0578
h) Interpersonal Communication disorders	10	4	2.57	0.1088 *

* = Statistically significant

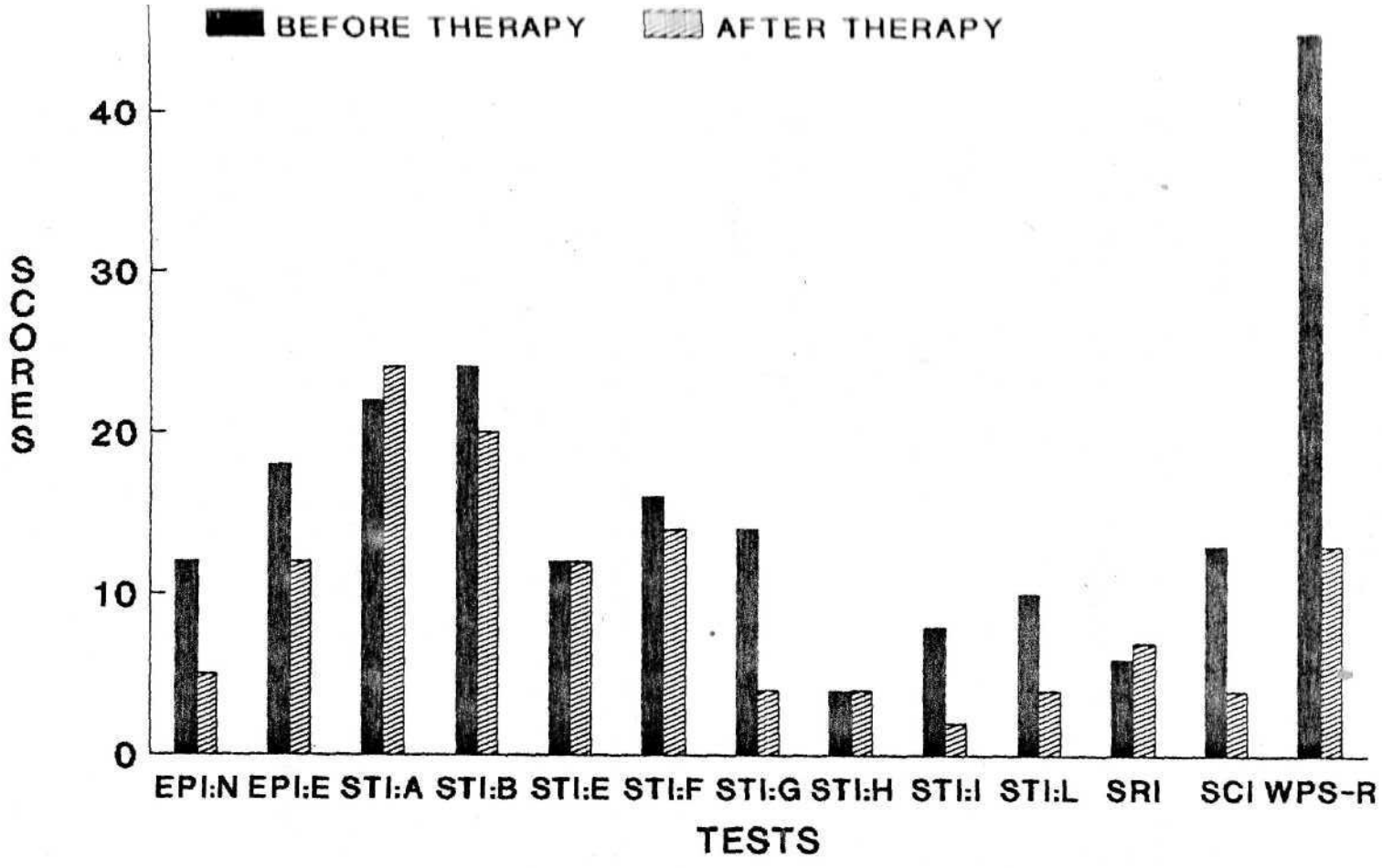

FIGURE 32: Personality scores of M.C.R. E.P.I.=Eysenck Personality Inventory, N=Neuroticism, E=Extraversion, S.T.I.=Surface Trait Inventory, A=Activity, B=Cyclothymia, E=Depression, F=Emotional instability, G=Introversion, H=Feeling of inferiority, I=Psychosomatic Disorders, L=Interpersonal Communication Disorders, S.C.I.=Self Confidence Inventory, S.R.I.=Social Reaction Inventory, WPS-R=Revised Willoughby Questionnaire.

disorders of S.T.I. (X2=2.57, P=0.11). His score an emotional instability and feeling of inferiority had not changed much compared to before therapy.

In general, the psychological test scores before therapy indicated that M.C.R. was an extraverted person with social anxiety, depressive features and internal locus of control. The test after therapy indicated introversion, reduction in social anxiety and improved interpersonal communication. M.C.R. had shown improvement with prolongation and air flow techniques. Assertive training and generalization of fluency procedures helped him to increase his self confidence and maintain his fluency. After therapy assessment indicated that his stuttering had increased (0.8% SS and 0.79% SS in reading and spontaneous speech).

It was attempted to followup M.C.R. at the end of first month, third month, and after six months. M.C.R. was available for second and third followup sessions. There was some change in the speech of M.C.R. as his disfluency was moved from 0 to 1.21 and 1.80 in reading and spontaneous speech in followup sessions.

CASE-17

K.S. a twenty one years old male was from a rural area with an Engineering degree. The case reported that the stuttering started when he was three year of age. According to K.S. the stuttering aggravating stimuli were: starting conversation with strangers, elders and while speaking over phone. The speech of the case consisted of repetitions and prolongations. The secondaries consisted of eye blinking, shaking of hands and tapping of leg.

The response pattern of K.S. to treatment is shown in Figure.33. The figure indicated that eight sessions of P.M.R. therapy had not brought significant change in the speech . His stuttering in reading was reduced to 1.88% SS from 3.37% SS and in spontaneous speech 10.71% SS from 15.95% SS. Eight sessions of R.S.T. had not brought any significant change in the speech . His stuttering increased in reading but reduced in spontaneous speech. K.S. showed improvement with prolongation and airflow therapy.

However, as K.S. reported lack of confidence in meeting the strangers, elders and while speaking over phone Assertive Training was administered. His fluency continued to be good and stuttering reduced to 0% SS both in reading and in spontaneous speech. The generalization of fluency procedure had helped him to maintain his fluency outside the

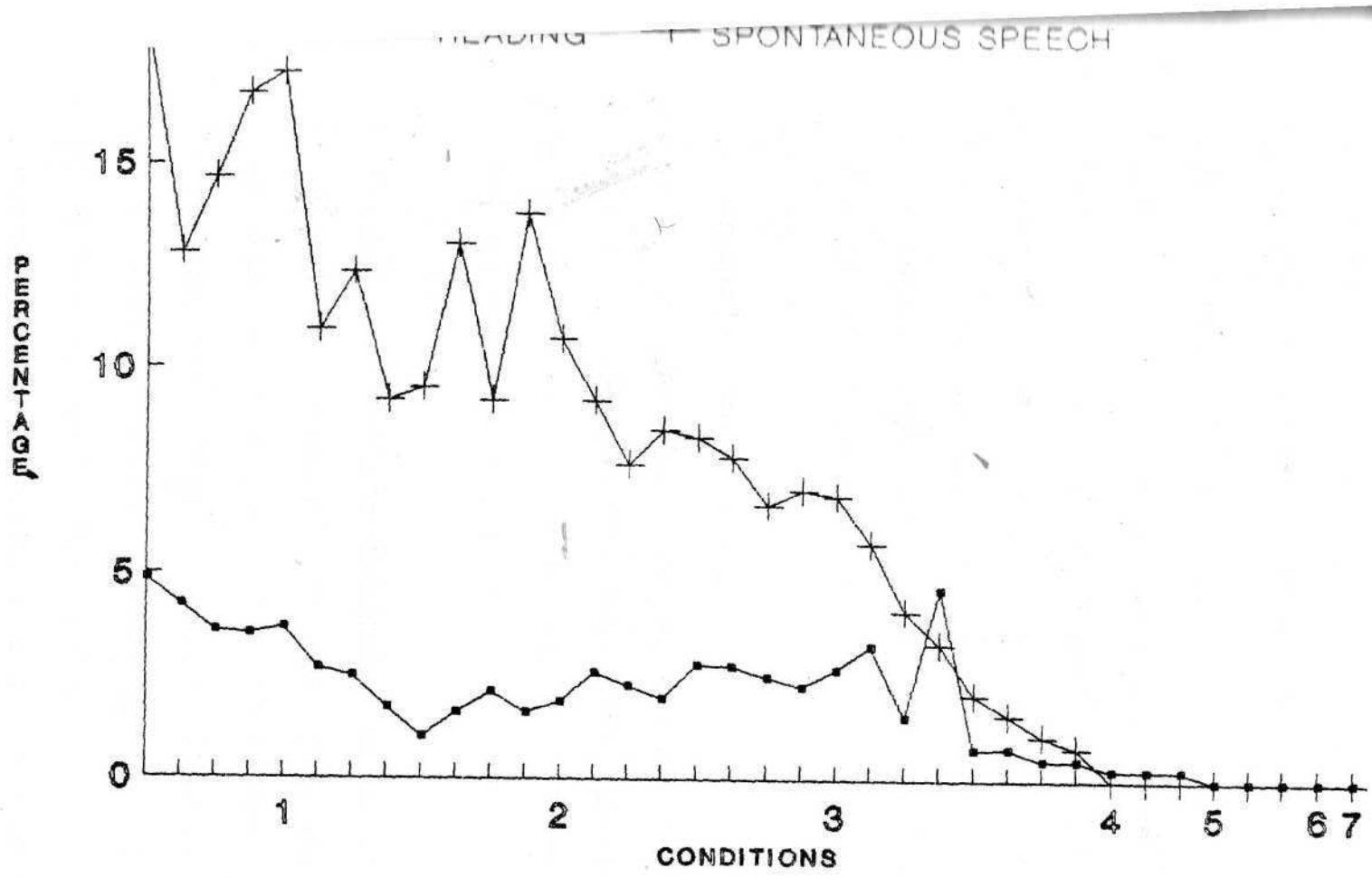

FIGURE 33: Percentage of Stuttering of K.S. Conditions: 1.Base Line, 2.Progressive Muscular Relaxation, 3.Rhythmic Speech, 4.Prolongation, 5.Air-flow, 6.Assertive Technique, 7.After Therapy.
The points between conditions on X-axis indicate number of sessions.

clinic. His rate of speech after therapy had increased compared to his base rate i.e., 256 SPM and 237 5PM in reading and spontaneous speech respectively.

Table 17 and Figure.34 present a comparison of scores of K.S. on psychological tests, before and after therapy. A significant change was noticed on emotional instability, the score reduced from 14 to 2 (X2=9.00, P=0.00). His score on feeling of inferiority also reduced from 14 to 6 (X2=3.20, P=0.07). Though this reduction was not statistically significant it was important to note the clinical changes with the case.

In general, the psychological test scores before therapy indicated that K.S, was an extraverted person with internal locus of control. The test after therapy indicated no significant change. P.M.R. and R.S.T. had not shown significant change in the speech . After eight sessions of therapy K.S. had shown improvement with prolongation and air flow techniques. Assertive training and generalization of fluency procedures helped him to increase his self confidence, improved interpersonal communication and maintain his fluency. The post therapy scores of personality tests indicated no change, expect on feeling of inferiority and emotional instability which were reduced.

It was attempted to followup K.S. at the end of first month, third month, and after six months. He was not available for followup sessions.

TABLE 17,

Presents the scores of K.S. on Pyschological tests before and after therapy.

Test	Before Therapy	After Therapy	X2 value	P value
1) S.C.I.	16	15	0.03	0.8575
2) WPS-R	11	8	0.47	0.4913
3) S.R.I.	9	5	1.14	0.2850
4) E.P.I.:				
a) Neuroticisra	8	2	3.60	0.0578 *
b) Extroversion	16	16	0.00	1.0000 *
5) S.T.I.:				
a) Activity	12	20	2.00	0.1575
b) Cyclothymia	14	20	1.06	0.3035
c) Repression	6	8	0.29	0.5930
d) Emotional Instability	14	2	9.00	0.0027 *
e) Introversion	18	8	3.85	0.0499 *
f) Feelings of inferiority	14	6	3.20	0.0736
g) Psychosomatic disorders	2	0	2.00	0.1573
h) Interpersonal Communication disorders	4	6	0.40	0.5271

* = Statistically significant

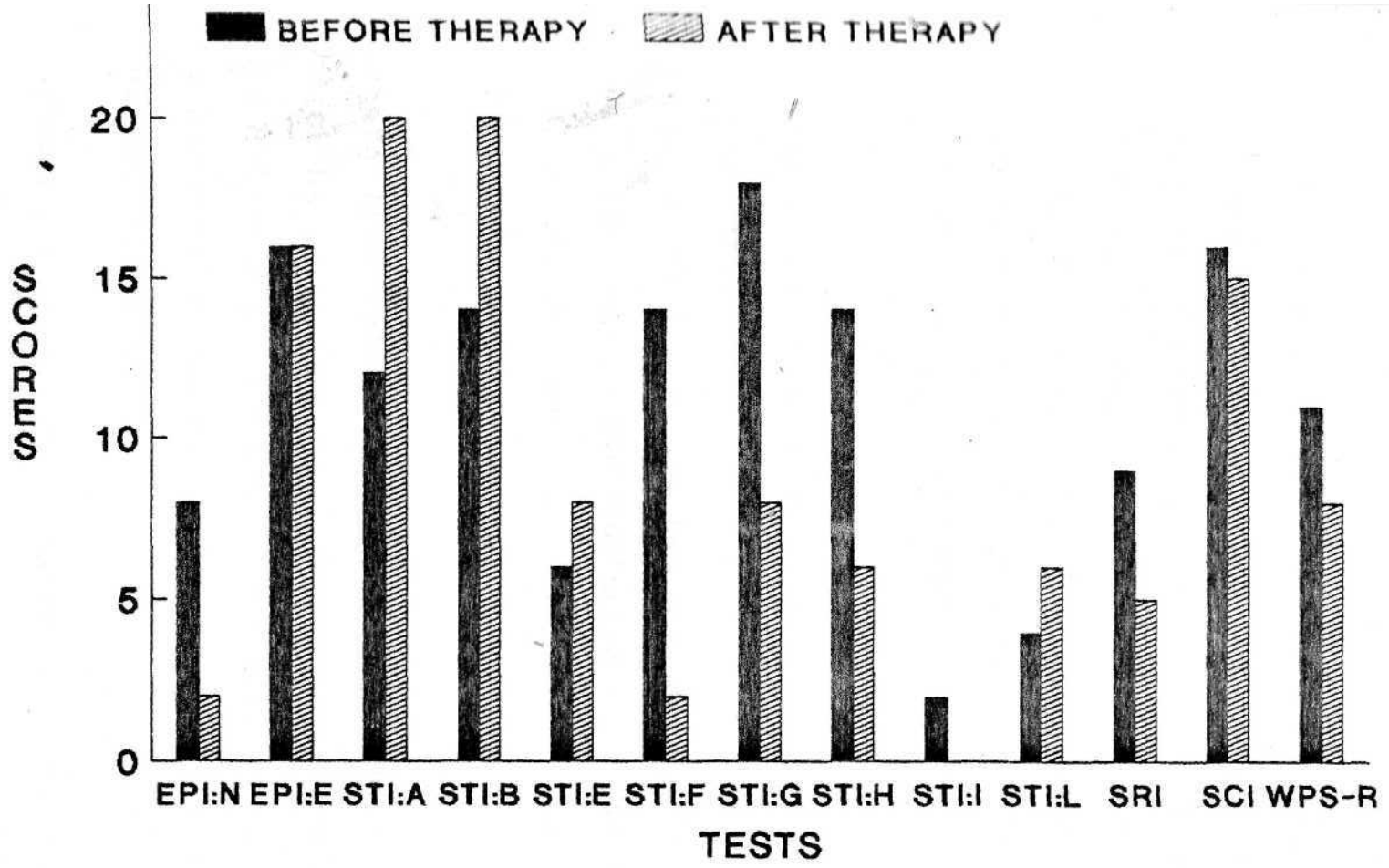

FIGURE 34: Personality scores of K.S. E.P.I.=Eysenck Personality Inventory, N=Neuroticism, E=Extraversion, S.T.I.=Surface Trait Inventory, A=Activity, B=Cyclothymia, E=Depression, F=Emotional instability, G=Introversion, H=Feeling of inferiority, I=Psychosomatic Disorders, L=Interpersonal Communication Disorders, S.C.I.=Self Confidence Inventory, S.R.I.=Social Reaction Inventory, WPS-R=Revised Willoughby Questionnaire.

CASE 18

H.C.S. a twenty one years old male was from a rural area with Engineering degree. The case reported that the stuttering started when he was five year of age. The stuttering aggravating stimuli were: starting conversation with strangers, elders and group. The speech of the case consisted of repetitions and prolongations. The secondaries consisted of eye blinking, moving of the hand and arm swinging.

The response pattern of H.C.S. to treatment is shown in Figure.35. The perusal of Figure.35 indicated that eight sessions of P.M.R. therapy had not brought any significant change in the speech . His stuttering was 6.15% SS in reading and 6.98% SS in spontaneous speech. The figure also indicated that R.S.T. had not brought any change in the speech (6.58% SS in reading and 7.02% SS in spontaneous speech). Prolongation therapy had brought significant change 2.36% SS in reading and 3.49% SS in spontaneous speech). As he did not reach the fluency criteria he was tried on Air Flow Technique and the stuttering reduced to 0 in reading and in spontaneous speech.

However, as H.C.S. reported lack of confidence in meeting the strangers, elders and to group Assertive Training was administered. The fluency continued to be good in both

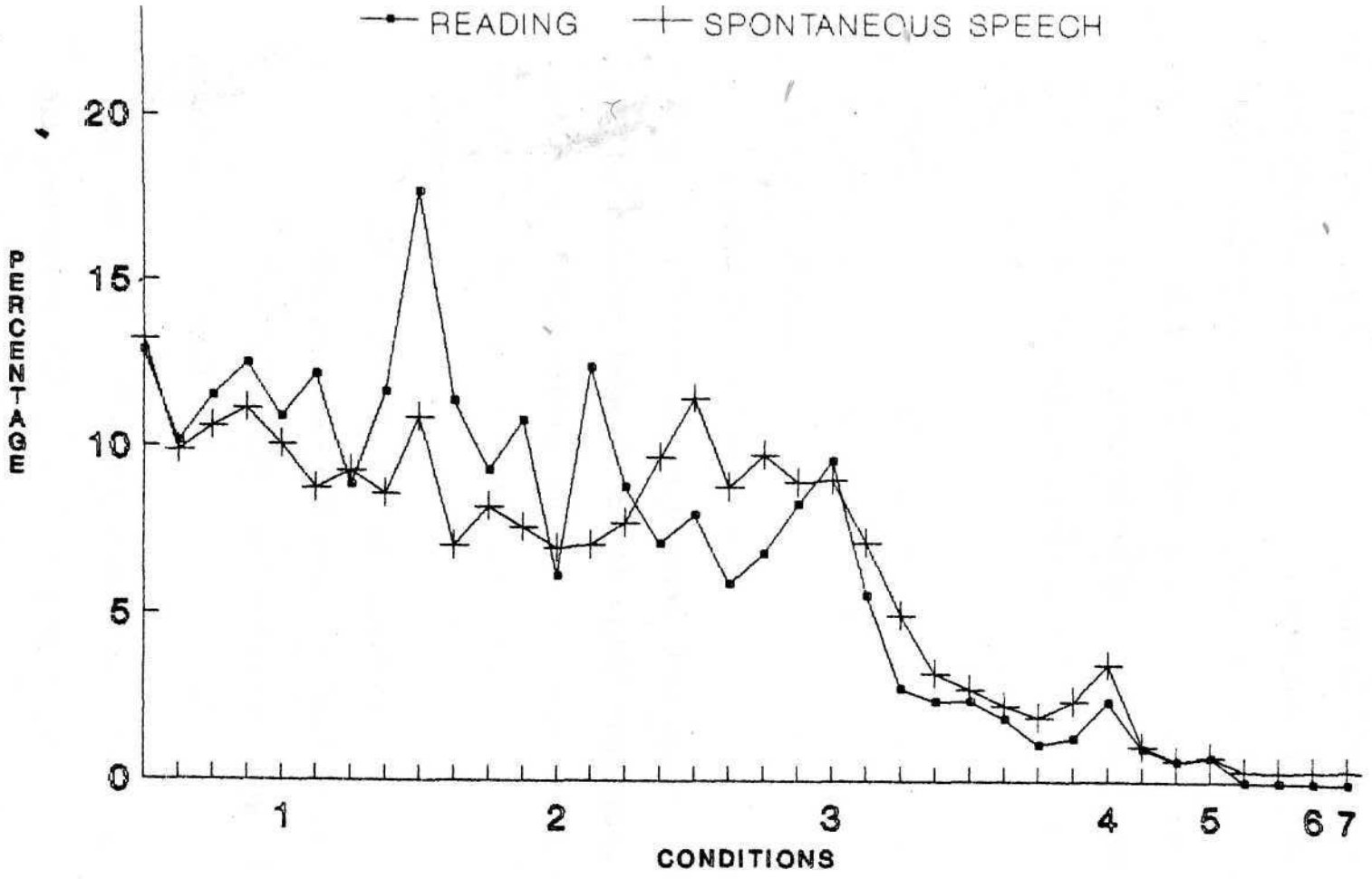

FIGURE 35: Percentage of Stuttering of H.C.S. Conditions: 1.Base Line, 2.Progressive Muscular Relaxation, 3.Rhythmic Speech, 4.Prolongation, 5.Air-flow, 6.Assertive Technique, 7.After Therapy.
The points between conditions on X-axis indicate number of sessions.

reading and spontaneous speech . It can also be seen from the figure that the generalization of fluency procedure had helped him to maintain his fluency outside the clinic. The syllable output after therapy had increased compared to the base rate i.e., 221 SPM and 219 SPM in reading and spontaneous speech respectively. But his stuttering had increased to 0.23% SS in reading and 0.42% SS in spontaneous speech.

Table 18 and Figure. 36 present a comparison of scores of H.C.S. on psychological tests, before and after therapy. A significant change was noticed on S.C.I, and WPS-R. The scores reduced from 52 and 60 to 17 and 32 ($X2=17.75$, $P=0.00$ and $X2=8.52$, $P=0.00$) respectively. The scores on neuroticism on E.P.I. reduced from 17 to 10 which indicated reduction in neuroticism. The scores on extraversion scale also reduced from 17 to 14 indicating that the case had moved from extraversion to introversion. S.R.I, indicated that he had maintained internal locus of control . A statistically significant change was noticed on emotional instability, depression, feelings of inferiority and interpersonal communication disorders of S.T.I.

In general, the psychological test scores before therapy indicated that H.C.S. was an extraverted person with internal locus of control, high social anxiety and low self confidence. The test after therapy indicated extraversion, increase self confidence, reduction in social anxiety.

TABLE 18

Presents the scores of H.C.S. on Pyschological tests before and after therapy.

Test	Before Therapy	After Therapy	X2 value	p value	
1) S.C.I.	52	17	17.75	0.0000	*
2) WPS-R	60	32	8.52	0.0035	*
3) S.R.I.	6	9	0.60	0.4386	*
4) E. P.I.:					
a) Neyroticisra	17	10 .	1.81	0.1779	*
'extroversion	17	14	0.29	0.5900	*
5) S.T.I.:					
a) Activity	24	20	0.36	0.5465	*
b) Cyclothymia	24	28	0.31	0.5791	*
c) Depression	16	8	2.67	0.1025	*
d) Emotional Instability	16		7.20	0.0073	*
e) Introversion	18	6	6.00	0.0143	*
f) Feelingsof inferiority	18	10	2.28	0.1306	*
g) Psychosomatic disorders	4		0.67	0.4142	
h) Interpersonal Communication disorders	12		4.00	0.0455	*

* = Statistically significant

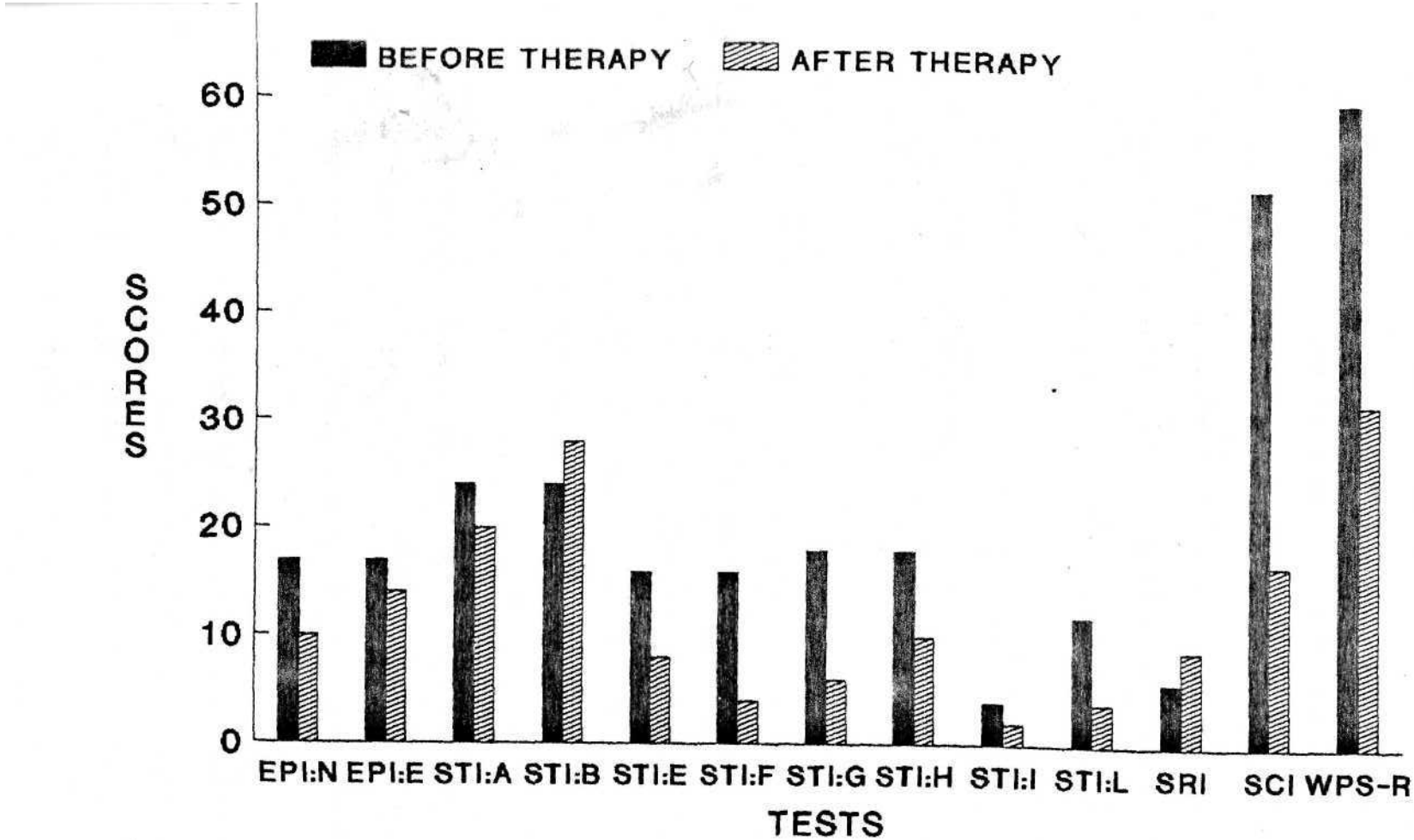

FIGURE 36: Personality scores of H.C.S. E.P.I.=Eysenck Personality Inventory, N=Neuroticism, E=Extraversion, S.T.I.=Surface Trait Inventory, A=Activity, B=Cyclothymia, E=Depression, F=Emotional instability, G=Introversion, H=Feeling of inferiority, I=Psychosomatic Disorders, L=Interpersonal Communication Disorders, S.C.I.=Self Confidence Inventory, S.R.I.=Social Reaction Inventory, WPS-R=Revised Willoughby Questionnaire.

H.C.S. had not shown significant change in his speech with P.M.R. and R.S.T . He had shown improvement with prolongation and air flow techniques. Assertive training and generalization of fluency procedures helped him to increase his self confidence, improved interpersonal communication and maintain his fluency. The post therapy scores of personality tests indicated positive changes in personality of H.C.S.

It was attempted to followup H.C.S. at the end of first month, third month, and after six months. He was not available for followup .

To summarize, the personality scores of the subjects before therapy indicated that out of 18 subjects, 10 were introverts and six were extroverts i.e., 55.55% cases were introverts (CS, RVS, DP, UST, RPH, BJ, NRG, BHN, BVB and NS) and 33.33% of cases were extroverts (ARH, APA, BMH, MCR, KS and HCS). Results also suggested that 61.11 percent of cases were neurotics, i.e., 11 out of eighteen cases had high scores on neuroticism (RVS,APA,UST, RPM, BJ, NRG, BVB, DAS, MNS, BMH and HCS). Eight out of 11 of these cases had shown introversion.

Majority of cases had poor self-confidence as indicated by S.C.I. Seventy seven percent of cases had low self confidence (CS, ARH, RVS, APA, UST, RPM, BHN, BJ, NRG, BVB, DAS, NS and HCS). Nine out of 13 cases were introverts and 3 were extraverts and one was an ambivert.

Results on WPS-R indicated that majority of cases, i.e., 77.77% percent of case had high social anxiety (CS, RVS, DP, UST, RPM, BHN, BJ, NRG, NS, DAS, MNS, APA, BMH, MCR and HCS). Out of these fourteen cases nine were introverts and four were extraverts. Nine out of 14 cases were also neurotic i.e., 64.28 percent of cases had high score on neuroticism.

Results on S.R.I.indicated that 50 percent of cases had internal locus of control and 50% had external locus of control (Internal locus of control - UST, BHN, BJ, BVB, NS, BMH, MCR, KS and HCS. External locus of control - CS, APA, ARH, RVS, DP, RPM, DAS and MNS). Out of 10 introverts, five had internal locus of control and five had external locus of control. Among extroverts 4 had internal locus of control and two had external locus of control.

Results on S.T.I, indicated that majority of cases had Depressive tendency, Emotional Instability, Feelings of inferiority and Interpersonal Communication disorders.
Thirteen out of 18 cases had high score on Depression scale i.e., 72.22 percent of cases had depression (RVS, DP, DST, RPM, BHN, BJ, NRG, BVB, NS, MNS, APA, BMH and MCR). Of these cases 9 were introverts and 3 were extraverts. Emotional instability scale of S.T.I. indicated that 66.66 percent of cases had emotional instability (NS, NRG, DP, RVS, RPM, BJ, UST, BHN, DAS, MNS, BMH and APA).

Eight out of 12 cases were introverts and only two extraverts who had emotional instability (Two cases were ambiverts). Feelings of Inferiority was seen among 50 percent of cases, as indicated by feelings of inferiority scale of S.T.I. (NS, DP, RVS, BJ, BVB, UST, BHN, MNS, and APA). Out of 9 cases seven were introverts and only one was an extravert.

Interpersonal Communication Disorders scale of S.T.I, indicated that 77.77% of cases had high score on this scale and indicated that stutterers had more difficulty to communicate with others. 14 out of eighteen cases had difficulty in interpersonal communication. Out of these 14 cases 10 were introverts and only two were extraverts (NS, NRG, DP, CS, RVS, RPM, BJ, BVB, UST, BHN, DAS, MNS, BHN and APA). Only one case had psychosomatic attribute.

The results of the therapy program indicated that all stutterers did not respond favourably to any single type of therapy technique, but responded to different therapeutic techniques in combination. Progressive muscular relaxation (PMR) was effective nearly on 50% of cases i.e., on eight cases (44.44%). Generally PMR did bring down social anxiety in stutterers but alone itself could not reduce stuttering.

Rhythmic Speech Technique (RST) was found to be the most effective technique 66.66% of cases(CS, RVS, DP, UST, RPH, BHN, BJ, NRG, BVB, DAS, MNS and NS) showed significant

improvement with RST and they reached 98 percent fluency criteria at 8th session of RST. The remaining 33.33% cases had not reached 98% fluency criteria at the 8th session of RST, and RST was not much effective on these cases (ARH, APA, BMH, MCR, KS and HCS). The cases who responded for RST were introverts and the cases who did not reach 98% fluency criteria were extraverts. It was also found that these cases responded to prolongation therapy technique. There was significant reduction in their stuttering at the 8th session of prolongation technique. However they did not reach 98% fluency criteria even at the end of 8 th session of prolongation technique. Further these six cases had reached 98% fluency criteria when they were put on airflow technique.

Assertion Training and Generalization of fluency procedure was effective on all 18 subjects. Stuttering was reduced almost completely in all the cases, except in two cases, MNS and APA.

Post therapy assessment of speech behaviour indicated that all 18 cases had 99% fluency both in reading and spontaneous speech and the rate of speech had increased compared to their base rate.

Post therapy assessment of personality of these cases indicated positive changes in their personality.

Analysis of the results of personality tests scores before and after therapy for subjects as a group, indicated significant changes in the personality of the subjects. The data was subjected to statistical analysis(repeated measures of ANOVA). The results are depicted in the Table-19.

The table indicated significant changes on Neuroticism, Depressive tendency, Emotional instability, Feelings of inferiority, inter-personal communication disorder, Self-confidence and Social Anxiety.

Comprising the individual scores to test score of extraversion - introversion scale of E.P.I., 55.55 percentage of cases were introverts and 33.33 percentage were extraverts. The extraversion - introversion scale of E.P.I. did not differentiate stutterers as a group. Although 55.55 percent of cases were considered as introvert, they were found to be within normal range, when stutterers scores were averaged and considered as a group, (this may be due to averaging of the scores. When the scores on introversion are on borderline and the extraversion scores are high, the average will bring them to normal range). Stutterers did not obtain scores as low as those reported from other clinical studies. For example, the stutterers means scores of 11.11 with a mean of 9.60 (Raj and Rao, 1970) and 9.63 for

Table 19:

Comparison of personality score of the subjects before and after therapy

Scale	Before	After	Df	F-Value	P
EPI N	16.39	8.61	1	69.30	0.0001
EPI E	11.11	13.11	1	3.56	0.0757
STI A	19.11	24.00	1	10.13	0.0054
STI B	15.06	20.11	1	20.97	0.0003
STI E	20.06	10.72	1	36.61	0.0001
STI F	19.11	9.22	1	30.11	0.0001
STI G	19.17	7.61	1	85.76	0.0001
STR H	19.22	10.11	1	29.005	0.0001
STI I	8.67	3.78	1	13.55	0.0019
STI L	19.11	6.06	1	54.39	0.0001
	11.33	9.28	1	7.15	0.0161
SC I	49.83	23.06	1	35.01	0.0001
WPS-R	52.67	18.83	1	88.22	0.0001

stutterers (Hedge, 1971). The results are in agreement with the study reported by Gudi, et.al., (1985) on 75 stutterers and equal number of normals.

On Neuroticism scale the mean score reduced from 16.39 to 8.61 (P=.0001). Nearly 94 percent of subjects showed reduction in their neuroticism, except one subject (APA) who was an extraverted person. Further a great deal of improvement was seen on self-confidence and social anxiety. As indicated in the table the mean scores on SCI was reduced to 23.06 from 49.83 (P=.0001). The reduction in Neuroticism, Social Anxiety and improved Self-confidence indicated that the therapy programme brought significant changes in the personality of subjects. The table also indicated significant change on Depressive tendency, Emotional Instability, Feelings of Inferiority and Inter-Personal Communication disorders scale of STI. The mean score on Depression had changed from 20.05 to 10.72 (P=0.0001) and on Emotional instability from 19.11 to 9.22 (P=0.0001). This change in the mean score indicated that the therapeutic programme helped to reduce depression. Depression was reduced in almost all the subjects but emotional instability was reduced in 66.66 percent of cases.

Feelings of Inferiority was reduced in almost all the cases. The mean score of 19.22 before therapy was reduced to 10.11 (P=0.0001). Statistically significant change was also

noticed in Inter-personal communication disorder scale of STI. The mean score of 19.11 before therapy was reduced to 6.05 (P=0.0001) after therapy. The results indicated that the therapy programme had brought significantly positive changes in the personality of the subjects.

The table also indicated that the therapy programme brought the changes in the personality dimension of the subjects. The scores an extraversion - introversion scale of E.P.I., moved towards normality.

The mean score on S.R.I, changed from 11.33 to 9.28 (P=0.161). The results indicated that the subjects further moved towards the internal locus of control. In general, the comparative score of personality tests before and after therapy indicated that the intensive therapy programme could bring positive changes not only in the speech behaviour of subjects but also in their personality.

CHAPTER - V

CHAPTER - V

DISCUSSION

MAIN FINDINGS

The results of the study brought out the following facts regarding the personality of stutterers:

1) Stutterers showed inclination towards introversion.
2) Large number of them were neurotics.
3) Majority of them showed high social anxiety.
4) Stutterers showed lack of self confidence.
5) Stutterers were found to be emotionally unstable.
6) Stutterers were characterized by feelings of inferiority.
7) Interpersonal communication of stutterers was found to be disturbed.

So for as the effect of various therapeutic techniques on stuttering concerned the study revealed the following results.

1) Introverted stutterers responded better to relaxation technique and rhythmic speech technique.
2) Extraverted stutterers, on the other hand responded better to relaxation technique, prolongation technique and air flow technique.
3) Assertive training and generalization of fluency procedures were found to be useful for all kinds of stutterers.

In addition to modification of stuttering behaviour, the therapeutic procedures also influence the personality of the stutterers in the following way:

1) Therapeutic programme brought significant changes in personality including modification of extraversion introversion dimension towards normal, reducing neuroticism, social anxiety, inferiority feelings, enhancing self-confidence, and emotional instability.
2) Therapy also produced an inclination towards internal locus of control.
3) The result suggested that the therapeutic package programme could be developed for different types of stutterers on the basis of their personality dimension.

PERSONALITY OF STUTTERERS

The scores obtained on extraversion scaleof E.P.I., cyclothymia, and introversion scale of the S.T.I, indicated that stutterers were more inclined towards introversion. There were eight subjects who had the score of eight and below on extraversion scale of E.P.I, and two subjects scored nine on this scale. The score of nine is nearer/closer to the cut off score of introversion (8 and below introversion). All the ten subjects also had high score on introversion scale of S.T.I. (22 and above introversion). Taking this cutoff scores, all these cases were considered as introverts. Two cases (DAS and MNS) fell in the normal zone. One case (DAS) had high score on introversion score of S.T.I.. Hence DAS was also considered as introvert.

Comparison of the individual scores on extraversion - introversion scale of E.P.I, with the test norms, indicated that 61.11 percent of cases were introverts and 33.33 percent were extroverts. However, when the mean score was obtained for the whole group, it indicated neither extraversion nor introversion. This may be due to averaging of the scores. The results therefore, suggested that stutterers are not homogeneous, and they were rather a heterogeneous group.

Van Riper (1971) stated that the population of stutterers is not homogeneous, and it includes subgroups that can be differentiated. The findings of this study supported the above hypothesis. Because of their heterogeneity they also did not respond to a particular treatment method.

The results also indicated that majority of the stutterers had personality maladjustment. When compared to test norms, the stutterers showed high scores on neuroticism scale of E.P.I.. Nearly 61 percent of the subjects were neurotics. It was believed that a typical stutterer was more neurotic than a non-stutterer. A stutterer feels that he is looked down upon by others because of dysfluency of speech. He feels embarrassed, frustrated, and/or humiliated because of his stuttering.

Results also indicated that majority of the stutterers had depression (61%), emotionally instability (66%), and disturbed interpersonal communication (77%) as shown by STI.

This generally reflected the feelings of personal inadequacy, uneasiness, inferiority, and discomfort together with the disturbed interpersonal communication.

On S.C.I., the stutterers had higher scores indicating low confidence. Nearly 72 percent of cases exhibited lack of self confidence, also majority of stutterers had high score on WPS-R. Nearly 88 percent of subjects had high social anxiety.

The results however, did not indicate any significant relationship between stuttering and internal-external locus of control.

From the findings of the study, it could be inferred that stutterers had personality maladjustment. It is however, difficult to establish whether the personality maladjustment could be the causative factor for stuttering or the stuttering could be the causative factors for developing personality maladjustment. Since the two are correlated, they could even be reinforcing each other. As emphasized by Bloodstein (1969) and Goodstein (1958) in their reviews of studies of dysfluency and personality, severe psychopathology and emotional maladjustment are not consistent in stutterers, and no basic personality structure can be attributed to stutterers. Thus it would be inaccurate to view personality

dynamics to the etiology of stuttering. Goodstein, however, does note that studies comparing stutterers to presumably normal individuals show stutterers to be "more anxious, tense, and socially withdrawn".

One can however be sure that the stuttering may be a causative factor in disturbing the personality. When the communication is affected due to stuttering, the person's entire social interaction will be disturbed. If one fails to have a normal communication with others, he may develop feelings of inferiority, lack of confidence, which, in turn would lead to anxiety and tension. Anxiety and stuttering become vicious circle. As the stuttering progresses, the individual may develop depression, which in turn may lead to emotional instability. Clinical, and theoretical studies show that anxiety and depression are closely related.

The findings of the present study are in agreement with findings of Bender, Brown and Hull(cited in Goodstein,1958), Hegde, (1971), Raj (1982), Raj and Rao, (1970), Sergeant (1961) and Criag (1990).

Bender found that stutterers were more introvert, neurotic, less dominant in interpersonal relationships and lacking in self confidence. Schultz reported that stutterers were submissive, inhibited, hypersensitive, and asocial. Richardson also found similar results and reported that

stutterers were more socially introverted and serious in their outlook on life problems (cited in Goodstein,1958).

Raj (1982) compared stutterers and normals on Personality Trait Inventory and concluded that stuttering is basically a deviant personality having depression tendency, emotional instability, introversion, feelings of inferiority and disturbed interpersonal communication. In contrast to the above findings, Prince (1972) found no correlation between personality and stuttering. Miller and Watson (1992) reported that people who stutter were not more anxious, tense, or depressed than non stutterers.

A study by Raj and Rao (1970) suggested that stutterers, as a group, were more inclined towards introversion and introverted neurotics were many more than the extraverted neurotics. Hegde (1971) concluded that stutterers were more introverted than the average and considered introverts and more neurotic than the normal population.

THERAPEUTIC INTERVENTION AND PERSONALITY:

Stuttering is a widespread problem, very debilitating, and the stutterers rarely undergo spontaneous recovery. The review of research reports indicated that behaviour therapy of stuttering has been significantly effective (Andrews, Howie & Guitar , 1980). Factors affecting changes might include the therapeutic techniques used, the personality

characteristics or traits of the patient, and the type and severity of stuttering.

In the present study analysis of the results on personality tests after therapy indicated significant changes in the personality of stutterers. A statistically significant change was noticed in the dimension of extraversion introversion, neuroticism, depressive tendency, emotional instability, feelings of inferiority, interpersonal communication disorder, self confidence, and social anxiety.

Results on extraversion scale of E.P.I., cyclothymia and introversion scale of S.T.I, indicated that the majority of subjects moved towards the normal range. The scores on introversion increased and extraversion decreased. Further, the majority of stutterers showed significant reduction in neuroticism. A great deal of improvement was seen in self confidence and in social anxiety. Social anxiety reduced in almost all the subjects and self-confidence increased among a large number of cases.

Significant change was also seen in depressive tendency, emotional instability, feelings of inferiority and interpersonal communication disorder. Depression and Feelings of Inferiority reduced in almost all the cases, and also improved interpersonal communication was observed.

Surprisingly, the emotional instability did not change as expected, as only 66 percent of subjects improved in emotional instability. This could be attributed to the fact that the stutterers need more time to adjust themselves with their environment.

Change was also noticed on internal-external locus of control. The results after therapy indicated that the subjects moved further towards the internal locus of control.

The post therapy results on personality tests suggest significant positive personality changes in the subjects. As reported earlier stutterers were found to be neurotic, anxious, and having social inhibition. This was also noticed during clinical interviews with the cases. The therapeutic programmes planned to meet different problems associated with stuttering, should be such that they are directed not only towards changing fluency but also the personality of the stutterer. When the stutterers are put on progressive muscular relaxation, the relaxation response is expected to reciprocally inhibit anxiety associated with speech task. When the stutterer's anxiety is eliminated, stuttering decreased. Relaxation not only helps the stutterers to reduce anxiety and stuttering, it also helps in reducing other associated problems. For examples when the tension reduces, stuttering reduces and fluency increases. When fluency increases, stutterers may develop confidence and their

feelings of inferiority and depression may reduce. Thus the effective therapeutic programme could effect the changes in the personality of the stutterers.

Lanyon (1966) correlated MMPI scores of 25 severe stutterers at the beginning of therapy with independent speech improvement ratings. The stutterers who improved as a result of speech therapy were reported to resemble those who improved as a result of psychotherapy, in terms of ego-strength and non-deviancy in personality and thinking 'patterns. As a result of therapy, the stutterers were found to be more energetic, less pessimistic and less socially alienated.

Gray and Brutten (1965), on the other hand, did not report any relationship between a change in the frequency of stuttering and anxiety level.

Criag and Andrews (1985) reported that stutterers who moved during therapy in the direction of internality and locus of control (at least 5% changes) maintained their fluency ten months after treatment. However, Ladouceur, Caron and Caron (1989) reported that perception of control did not change from external to internal. Successfully treated stutterers became more external either at post treatment or at follow up test.

Greiner, Fitzgerald, Cook and Djurdjic (1985) used WPS-R on 41 stutterers and 41 non-stutterers to find out social sensitivity in stutterers. The result suggested that the test may be useful for evaluating general anxiety and for monitoring changes in emotional reactivity as clinical intervention programme. The findings by Ojha and Bettagere (1982) indicated that the group psychotherapy helps in expression of interpersonal difficulties, feelings and resolution of conflicts among stutterers.

THERAPEUTIC INTERVENTION AND STUTTERING:

Analysis of the therapy programme indicated that all stutterers did not respond favorably to any single type of therapy technique. However, when different therapeutic techniques were combined, the responses of the stutterers were found to be highly favourable.

Nearly 50 percent of cases responded progressively for relaxation therapy (PMR). These cases were neurotics and had high social anxiety. Relaxation might have reciprocally inhibited anxiety. These cases had 50 percent reduction in their stuttering. Generally, PMR brought down social anxiety, but by itself could not reduce stuttering. The results of this study support the findings of Lanyon (1969).

Some clinicians regard anxiety as a causative agent and prominent factor in the origin and maintenance of stuttering. Therapy therefore should be directed at the anxiety first and then to stuttering (Sheehan, 1975).

In the present study, majority of subjects showed significant improvement with R.S.T., and they reached 98 percent fluency criteria at the 8th session of R.S.T.. The remaining few cases did not reach 98 percent fluency criteria at the 8th session of R.S.T.. Hence, R.S.T. was found to be the most effective technique. These cases were found to be introverted on personality tests except one case (MNS), who was an ambivert. Generally the introverts were found to be perfect in their work, and they followed the procedures systematically. The R.S.T. required systematic follow of rhythmic beats, and the patient should also follow the procedure while speaking outside the clinic. Probably the introverted stutterers master this technique more easily and hence, show better improvement in their speech.

These findings are in agreement with the findings of Berman and Brady (1976), Brady (1971), Ingham, Andrews and Winkler (1972) and Wolpe (1969).

Brady (1971) reported that 21 out 23 stutterers showed marked decrease (67 percent) in dysfluency level and improvement in general adjustment,after RST.

In the present study nearly 33 percent of subjects did not respond to RST, but responded to prolongation technique. These cases were found to be extraverted persons, as indicated by test scores. Prolongation technique brought progressive improvement with extraverted stutterers. There was significant reduction in their stuttering, but they did not reach fluency criteria at the end of 8th session of prolongation technique. The failure to achieve complete fluency with prolongation technique may be due to hard contact in their stuttering behaviour.

Among these six extraverted stutterers, 3 subjects were neurotic, who had high social anxiety and low self-confidence. Except one subject, others did not show any other personality maladjustment. They did not show emotional instability, feelings of inferiority and even inter-personal communication difficulty.

The findings of the present study support the findings of other investigators (Curlee & Perkins, 1969; Howie, Tanner & Andrews, 1981; Watts, 1977; Webster, 1970, 1971). Webster (1970) treated subjects in the laboratory with prolongation technique and all showed a low number of words stuttered compared with pre-treatment frequency.

The six cases who did not reach fluency criteria at the end of 8th sessions of prolongation therapy responded favorably to the Air-flow technique. All these cases gained 99 percent fluency with Air-flow technique.

The findings are in agreement with the findings of Schwartz (1976) who reported that 84 percent of 185 stutterers, who received Air-flow therapy were completely symptom-free in all situations within a week and 85 percent were symptom-free even after a year. Andrews and Tanner (1982) also reported similar results. Falkowski, Guilford and Sandier (1982) suggested that application of airflow technique can reduce stuttering in short term. This may however, be more useful and effective, if combined with other therapeutic procedures.

Assertive training was effective on all 18 subjects. All the subjects maintained their fluency, and the rate of speech increased in some cases (66.66%) and was maintained in the remaining cases (33.33%). Generally, assertive out going behaviour seems to reduce speech related anxiety and helps to increase fluency. If they could become more assertive and at ease in social situation, stuttering would decrease. Assertive training procedure helped the subjects to over come their feelings of inferiority, and to develop more self confidence. Self confidence, in turn helped in social interactions and improved interpersonal communication.

The results of this study support the findings of other studies (Burns & Brady, 1980). Balson (1976) reported a case of an adult stutterer treated with relaxation training, assertive training with behavioural rehearsal and role play.

He noted complete elimination of symptoms. Burns and Brady (1980) reported using assertive training in a 28 years old stutterer. The subject showed improvement and was able to handle various situations effectively after treatment.

Generalization of fluency procedures helped all the stutterers to maintain their obtained fluency out side the clinic and the rate of speech was also observed to be increased.

Perkins (1973) recommended a package of procedures in order to aid generalization and maintenance of fluency. Procedure included self-assessment on dimensions such as fluency, rate, breath flow, prosody, and self confidence to determine a subject's speech performance in various non-clinic situations. Ingham (1982) demonstrated that self-managed procedures may be effective in obtaining generalization and in maintaining treatment gains.

In the present study post therapy assessment of speech indicated that all introverted stutterers maintained their increased fluency and rate of speech compared to their base rate. The extraverted stutterers showed some percentage of dysfluency either in reading or in spontaneous speech or in both. Because of their extraversion, these stutterers failed to maintain the fluency.

The analysis of the results of therapeutic programme indicated that a subject did not respond to one single therapy technique but responded better to a combination of techniques. Generally stutterers had neuroticism, social anxiety, low self-confidence, depression, emotional instability, and feelings of inferiority. Therapy could be planned to eliminate these personality maladjustments along with correcting dysfluency. The personality profiles indicated that the stutterers were not homogeneous,' but rather included subgroups. The results of the study demonstrated that there were introverted and extraverted stutterers. Depending upon the personality traits, the subjects of this study responded to different therapeutic techniques and their combinations in different ways.

The introverted stutterers with high neuroticism, high social anxiety and lack of self-confidence responded significantly to relaxation therapy and rhythmic speech technique. Their anxiety was reduced considerably and their dysfluency was fully reduced. Further the extraverted stutterers with high social anxiety got some benefit from relaxation therapy but those subjects who were less anxious got less benefit from relaxation therapy. Further, these extraverted stutterers responded favourably to the prolongation and air-flow technique. Generally stutterers were found to be less assertive with feelings of inferiority.

Assertive training and generalization of fluency procedures helped all the subjects to improve their interpersonal communication, maintain fluency and to increase the rate of speech. Assertion training and generalization of fluency procedure could be combined with other therapy programmes for better results.

The results of the present study support the findings of other studies. Poppen, Nunn and Hook (1977) applied a variety of treatments in a serial order on an adult stutter. Treatment included metronome pacing, reading a play, signaled consequences for stuttering, reading scripts and conversation, behind the ear metronome pacing, in viva desensitization, and regulated breathing. They reported that these procedures were effective in reducing stuttering.

Andrews, Howie, Dosza and Guitar (1982) treated three stutterers under fifteen conditions including shadowing, syllable timed speech, relaxation, masking, combination of prolongation and DAF, etc. They reported that all the conditions were effective individually,at time, but, in general, they all reduced stuttering significantly.

Hasbrouck and Lowry (1989) reported the results of intensive treatment package programme on 24 stutterers. The treatment package consisted of graded air-flow, tension relaxation and EMG feedback. The results of their study demonstrated that application of combination of treatment

procedures could be effective in reducing stuttering and maintaining fluency.

Martin and Haroldson (1979) treated 20 stutterers with five experimental treatments including time-out, noise, DAF, "wrong" and Metronome, and reported that percentage of stuttering decreased significantly in all conditions.

Regulated breathing method (Azrin & Nunn, 1974) consisted of several components and could be considered as a package programme. The results reported on regulated breathing procedures indicated significant improvement with stutterers (Azrin, Nunn & Frentz, 1979; Saint Laurent & Ladouceur, 1987).

The present trend in stuttering therapy has moved from individual therapy to combining several procedures into a therapeutic package. The review of research suggests that most treatment programmes include combination of several procedures or different components. Most therapies are a combination of different procedures and targets (Hegde, 1985). Hence the present study, though consisted of different therapeutic procedures, could be considered as a package programme.

Intensive therapeutic programme brought significant changes in the above mentioned traits of stutterers. Stutterers are not homogeneous. Different types of stutterers

need different therapeutic programme. A package programme may be useful to treat different types of stutterers. Introverted stutterers may respond better with package programme including relaxation, rhythmic speech technique, assertive training and generalization of fluency procedures. The extraverted stutterers may benefit from the package programme including relaxation, prolongation technique, air-flow technique, assertive training, and generalization of fluency procedures.

In sum, the present study revealed that the stutterers had high social anxiety, low self-confidence, depressive tendency, emotional instability, feelings of inferiority, introversion and neuroticism. Introverted stutterers responded better to progressive muscular relaxation and rhythmic technique. Extraverted stutterers responded better with progressive muscular relaxation and prolongation and Air-flow therapy. Assertive training and Generalization of fluency procedures were also useful for stutterers. Results also indicated that therapeutic programme brought significant changes in the personality of stutterers.

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APPENDIX

APPENDIX-A

DEFINITION OF TERMS AND CONCEPTS USED IN THE STDDY

Selection, Definition and explanation of various terms are interrelated.

PERSONALITY

Generally personality is used colloquially to imply personal attractiveness, the ability to withstand hardship and other specific qualities. Occasionally it is used to identify a general integration of responses, an individual style of life, or a unique point of view.

The scientific conception of personality has been worked out to some extent by trial and error. Kempf has defined personality as "the habitual mode of adjustment which the organism effects between its own egocentric drives and the exigencies of the environment" (p.4). According to Prince "personality is the sum total of all the biological innate dispositions, impulses tendencies, appetites and instincts of the individual, and the acquired dispositions and tendencies" (p.4)7 Allport states that "personality is the individuals characteristic reactions to social stimuli and quality of his adaptation to the social features of his environment" (p.5) Watson stressed that character is part of personality. He says that "Personality includes not only these (character-conventional) reactions but also the more individual personal adjustments and capacities as well as their life history" (cited in Stagner, 1961) (P.5).

Allport (cited in Spear, Penrod & Baker, 1988) after an intensive analysis of the possible definitions of personality, has found a definition where intervening variables are considered essential. According to him personality is the dynamic organization within the individual of those psychophysical systems that determine his unique adjustment to his environment". It recognizes the changing nature of personality (a dynamic organization) and focuses on the inner aspect rather than on superficial manifestation. It also establishes the basis for the social stimulus value of personality (unique adjustment to environment). In the present study Allport's definition of personality has been adopted.

INTROVERSION - EXTRAVERSION

Although the concept of introversion-extraversion was originated by Jung as a clinical concept, Eysenck subjected it to experimental validation. According to Eysenck (1967) introverts are characterized by very sensitive cortical excitation processes. They tend, therefore, to feel intellectually and emotionally overwhelmed by moderate social and physical stimulation and are relatively prone to anxiety and depression. Extraverts, on the other hand, are characterized by less sensitive cortical processes or by a predominance of inhibitory cortical processes. Consequently, they require more stimulation from the social environment and may actively seek it to overcome their own cortical inertia.

Eysenck (1967) carried-out extensive experimental research on Extraversion introversion and ultimately found that introversion-extraversion dimension of personality did exist in reality.

In the present work the person will be considered extravert if he obtains a high score on the extraversion scale of Eysenck personality inventory, and introvert if his score is low in comparison to test norms.

NEUROTICISM

According to Eysenck (1967), neuroticism is closely bound up with autonomic nervous function, especially with the duration of adrenergic (sympathetic) excitation, and is partly inherited. The second factor after extraversion in Eysenck's personality model, neuroticism dimension is similar to the notion of emotional instability. Those individuals who fall at the extreme neuroticism end of the dimension tend to be more prone to worries and anxieties and get upset more easily. They are also likely to complain of headache and sleeping or eating difficulties. Although they may be more likely to develop neurotic disorders, the frequency of such problems is low and most individuals function adequately in their work and in their family and social life. Such people's emotions are easily aroused, they are moody, touchy, anxious, restless and so forth.

The scales roost frequently used to study extraversion and neuroticism, have been Cattell personality inventory and Eysenck personality inventory (Eysenck & Eysenck 1964). In Eysenck personality inventory, the N scale has been factorially established, and its term can be considered as highly valid and reliable. Hence, in the present investigation, the score on the N scale on E.P.I., represented degree of the neuroticism of the subject.

ANXIETY

Anxiety and its role in stuttering has been the source of considerable debate for clinicians. Definition is complex because of the interplay of cognition, behaviour, physiology and related emotions and overlaping of other state such as fear, anger, excitement etc. But for behaviour in general and stuttering in particular the confusion is lessened by the development of the concept of two anxiety syndromes: trait and state. The state anxiety refers to the concern, fear, anticipation and so on prior to and during a situation that is dangerous, throating, embarrassing, or otherwise negatively functional for the well being of the human organism. The trait anxiety is an ongoing functional state wherein the human organism perceives more threat and stress than probably exists, is more susceptible to it when it occurs, and reacts more strongly when under threat or stress (Spielberger, 1972).

Many studies are carried out in this regard. Boland (cited in Bloodstein, 1975) reported that stutterers are higher in general (trait) and speech situation (state) anxiety then nonstutterers.

In the present investigation the score on the Revised Willoughby questionnaire for self administration represented the degree of anxiety for a particular individual.

LOGOS OF CONTROL

The I.E. concept was first outlined by Rotter (1966). Rotter developed from social learning theory a concept of internal-external control of reinforcement which describes the degree to which an individual believes that reinforcement is contingent upon his own behaviour. Depending upon his fast reinforcement experiences, a person will have developed a consistent attitude tending toward either an internal or external locus as the source of reinforcement. In the present study the Social Reaction Inventory, Rotter (1966) (the Internal and External control scale) has been used to measure the locus of control among stutterers.

STUTTERING

"Many good minds have attempted definitions of stuttering, but the variability among them makes clear, this complex and variable disorder is hard to delimit".

- Van Riper (1982) (p.11).

Not only Van Riper, Wingate, also seems to agree that stuttering involves more than overt types of disfluency even though the portion of his "standard definition" which is the most widely used is strictly behavioural. Wingate (1964, 1984) insists, that observable characteristics of stuttering are sufficient to differentiate stuttered and nonstuttered dysfluencies.

According to Wingate (1964), "the term stuttering means: I(a) disruption in the fluency of verbal expression, which is (b) characterized by involuntary, audible or silent, repetitions or prolongations in the utterance of short speech elements, namely: sounds, syllables, and words of one syllable. II. Sometimes the disruptions are (e) accompanied by accessory activities involving the speech apparatus, related or unrelated body structures, or stereotyped speech utterance.... III. Also, there are not infrequently (f) indications or report of the presence of an emotional state, ranging from a general condition of "excitement" or "tension" to more specific emotions... (g) The immediate source of stuttering is some incoordination expressed in the peripheral speech mechanisms; the ultimate cause is presently unknown and may be complex or compound".

In the present study the term stuttering includes four kinds of dysfluencies

1) Hesitation (before completing a word or a syllable)

2) Prolongation of a syllable/sound

3) Repetition of sound, syllable, a word or part of a word

4) Blocking. Blocks/silent blocks

Occurrence of any one of the above was considered as an event of stuttering or a stuttering response.

SYLLABLE

In English, and in the majority of languages, phonological syllables consist of one or more consonants and a vowel. But a single vowel can constitute a syllable, as in ah /a/, and a syllable division can be established between two vowels as in seeing, where one observes a fall in sonarity in the transition between the two vowels.

In the present work, the term syllable will be used in the following sense:

1) Syllable can be either formed by a solitary vowel or diphthong or by combining a vowel or diphthong with one or more consonants.

2) Although syllables contain different number of consonants, they always contain one and only one vowel.

EVALUATION AND MEASUREMENT OF STUTTERING

The ratings of severity vary from clinic to clinic. The severity of stuttering is generally assessed only through judgement which was obviously subjective, that is based on the perception of listeners by making use of rating scales. Researchers, have also used measures such as clinicians ratings, self ratings, nonfluency rate or rate of speech in a

single speaking or reading situation. Thus over the year different techniques have been used to measures the severit of stuttering.

Rate of speech is measured by total number of syllables or words in a particular time period. There is a close relation between the rate of speech and stuttering (Amster, 1984). Stuttering severity, whether measured by judges or determined by the frequency of stuttering behaviour, is related to the rate of speech production. Larly stated that normal reading rate ranges from 129 to 222 word per minute with a mean rate of 148 WPM. Bloodstein found that the oral reading rate of adult stutterers was 123 WPM, rang being 42 to 191 WPM (cited in Bloodstein,1975).

Currently certain data measures are popularly used to provide baseline data for pretherapy, progress, and maintenance checks.

1. Words per minutes (WPM)
2. Syllables per minute (SPM)
3. Stuttered word per minute (SW/M)
4. Stuttered syllable per minute (SS/W)
5. Percentage of stuttered words (%SW)
6. Percentage of stuttered syllables (%SS)

(Ham 1986).

In the present study, the following measures have been used for measuring stuttering severity.

1. Syllables per minute as the measure of rate of speech on which instances occurred.
2. Percentage of syllables stutterer as a measure of stuttering

(Syllable per-minute = Number of syllables spoken in 2 min/2)

$$\frac{\text{Total number of stuttered syllables}}{\text{Total number of syllable spoken}}$$

BEHAVIOURAL ANALYSIS

Behavioural analysis is the process of gathering and shifting of information to be used in the conduct of behaviour therapy. The therapist's central focus is on the distress and disablement that have brought the patient to seek treatment (Wolpe, 1982). Behavioural analysis generates a series of tentative clinical hypotheses about the stimulus variables that are controlling and maintaining the patients problematic behaviours. Considerable knowledge of behavioural principles and clinical experience are necessary to carry out an analysis of this kind competently.

Three kinds of information are collected as part of behavioural analysis process:

1) The antecedent stimuli which trigger or exaggerate stuttering. Included under this will be situations which cause anxiety, leading to stuttering.

2) The response - contingent consequences which maintain or strengthen stuttering.

3) Presence of other stutterers in the family or among friends imitating whom the patient might have started stuttering.

In the present work the behavioural analysis is aimed to reveal which of the above three factors is responsible for stuttering in a given case.

BASELINES:

An important control strategy within single subject designs is the baselines or base rates of responses. Baselines are rates of responses in the absence of the independent variable whose effects are the subject of experimental analysis. Baseline document the frequency of the dependent variable before the independent variable is introduced. The absence of treatment during baseline condition makes it the control condition within the single subject designs. The dependent variable measures obtained in the treatment and baseline conditions can be compared to assess the treatment effects. .

INTER-OBSERVER RELIABILITY

Reliability refers to consistency among repeated observations of the same phenomenon. The same event is observed more than once either by the same individual or by different individuals. When the same person measures the same

phenomenon repeatedly, it is called intra-observer reliability and when the same phenomenon is measured by different observers, is called inter-observer reliability.

Inter-observer reliability is a crucial element of scientific measurement. Inter-observer reliability is one means of convincing the audience that the data are objective. Objectivity in science is realized only by an agreement among different observers regarding the measured values of a given phenomenon. Therefore, inter-observer reliability is one of the criteria used in the evaluation of scientific data. So it is a common feature in behaviouristic journals to report inter-observer reliability data.

There are three general methods of estimating the reliability of research data. The first method is "unit-by-unit agreement ratio" or "percentage of agreement". In this method two observers must agree on the individual instances of the response being measured. Statistical correlations provide a second method of calculating inter-observer agreement. A correlation such as the Pearson product moment coefficient, indicates the degree of covariation between any two sets of measures. The third, less frequently used method, is called a frequency ratio. In this method, the smaller of the two observations is divided by the larger and the resulting quotient is multiplied by 100 to express the ratio in percentages (Hegde, 1987). In the present study, "percentage of agreement" has been used as a measure of the inter-observer reliability.

ABBREVIATION USED

E.P.I.: Eysenck Personality Inventory.

WPS-R: Revised Willoughby Questionnaire.

S.C.I.: Self-confidence Inventory.

S.R.I.: Social Reaction Inventory.

S.T.I.: Surface Trait Inventory.

P.M.R.: Progressive Muscular Relaxation.

R.S.T.: Rhythmic Speech Technique.

P.T.: Prolongation Technique.

A.F.: Airflow Technique.

A.T.: Assertive Training.

G.F.P.: Generalization of Fluency Procedure.

F.U.: Follow up

APPENDIX-B1

EYSENCK, PERSONALITY INVENTORY

BY J.J.EYSENCK AND SYBIL B.G. EYSENCK

PERSONALITY QUESTIONNAIRE

FORM'A'

Name Age:

Occupation: Sex:

N = E = L =

Here are some questions regarding the way you behave, feel and act. After each question is a space for answering YES or NO.

Try to decide whether YES or NO represents your usual way of acting or feeling. Then put a cross in the circle under the column headed YES or NO. Work quickly, and do not spend too much time over any questions. We want your first reaction, not along drawn out thought process. The whole questionnaire shouldn't take more than a few minutes. Be sure not to omit any questions.

Now turn the page over and go ahead. Work quickly and remember to answer every question. There are no right or wrong answers, and this is not a test of intelligence or ability, but simply a measure of the way you behave.

FORM A	YES	NO
1. Do you often long for excitement?	( )	( )
2. Do you often need understanding friends to cheer you up?	( )	( )
3. Are you usually care free?	( )	( )
4. Do you find it very hard to take no for an answer?	( )	( )
5. Do you stop and think over before doing anything?	( )	( )
6. If you say you will do something, do you always keep your promise, no matter how inconvenient it might be to do so?	( )	( )
7. Does your mood often go up and down?	( )	( )
8. Do you generally do and say things quickly without stopping to think?	( )	( )
9. Do you ever feel "Just Miserable" for no good reason?	( )	( )
10. Would you do almost anything for a dare	( )	( )
11. Do you suddenly feel shy when you want to talk to an attractive stranger?	( )	( )
12. Once in a while do you loose your temper and get angry?	( )	( )
13. Do you often do things on the spur of the moment?	( )	( )
14. Do you often worry about things you should not have done or said?	( )	( )
15. Generally, do you prefer reading to meeting people?	( )	( )
16. Are your feelings rather easily hurt?	( )	( )
17. Do you like going out a lot?	( )	( )
18. Do you occasionally have thoughts and ideas that you would not like other people to know about?	( )	( )

	YES	NO
19. Are you sometimes bubbling over with energy and sometimes very sluggish?	( )	( )
20. Do you prefer to have few but special friends?	( )	( )
21. Do you day dream a lot?	( )	( )
22. When people shout at you, do you shout back?	( )	( )
23. Are you often troubled about feelings of quilt?	( )	( )
24. Are all your habits good and desirable ones?	( )	( )
25. Can you usually let yourself go	( )	( )
26. Would you call yourself tense or "highlystrung"	( )	( )
27. Do other people think of you as being very lively?	( )	( )
28. After you have done something important, do you often come away feeling you could have done better?	( )	( )
29. Are you mostly quiet when you are with other people?	( )	( )
30. Do you sometimes gossip?	( )	( )
31. Do ideas run through your head so that you cannot sleep?	( )	( )
32. If there is something you want to know about, would you rather look it up in a book than talk to some-one about it?	( )	( )
33. Do you get palpitations or thumping in your heart? (	)	( )
34. Do you like the kind of work that you need to pay close attention to?	( )	( )
35. Do you get attacks of shaking (	)	( )
36. Would you always declare everything at the customs, even if you knew that you could never be found out?	( )	( )

	YES	NO
37. Do you hate being with a crowd who play jokes on one another?	( )	( )
38. Are you irritable person?	( )	( )
39. Do you like doing things in which you have to act quickly?	( )	( )
40. Do you worry about awful things that might happen?	( )	( )
41. Are you slow and unhurried in the way you move?	( )	( )
42. Have you ever been late for an appointment or work?	( )	( )
43. Do you have many nightmares?	( )	( )
44. Do you like talking to people so much that you never miss a chance of talking to a stranger?	( )	( )
45. Are you troubled by aches and pains?	( )	( )
46. Would you be very unhappy if you could not see lots of people most of the time?	( )	( )
47. Would you call yourself a nervous person	( )	( )
48. Of all the people you know, are there some whom you definitely do not like?	( )	( )
49. Would you say that you were fairly self-confident?	( )	( )
50. Are you easily hurt when people find fault with you or your work?	( )	( )
51. Do you find it hard to really enjoy yourself at a lively party?	( )	( )
52. Are you troubled with feelings of inferiority?	( )	( )
53. Can you easily get some life into a rather dull party?	( )	( )
54. Do you sometimes talk about things you, know nothing about?	( )	( )
55. Do you worry about your health?	( )	( )

	YES	NO
56. Do you like playing pranks on others?	( )	( )
57. Do you suffer from sleeplessness?	( )	( )

(PLEASE CHECK TO SEE THAT YOU HAVE ANSWERED ALL THE QUESTIONS)

INDIAN NORMS

The Eysenck Personality Inventory standardized on Indian population, used norms provided by Raj and Rao (1970).

Extraversion	16 and above
Introversion	7 and below
Neuroticism	17 and above
Emotionally well adjusted	6 and below
Lie score	7 and above not valid

APPENDIX-B 2

SURFACE TRAITS INVENTORY

Please read through these directions carefully. This inventory consists of 180 items or statements relating to your attitudes, interests, feelings, habits and ways of behaving in every day life. As such there is no right or wrong answer for any statement. Some of these qualities may be applicable in your case and some may not.

Please read through each statement carefully and if it is usually or generally true for yourself encircle "YES", if it is not true or rarely true encircle "NO" against it. If you fail to decide, encircle (?). But you should try to answer "YES" or "NO" as far as possible.

In answering these statements "honesty should be the best policy", as this is meant to reveal your true personality and to discover the general trends of personality qualities in people at large. Your answers will be kept absolutely confidential and will be used only for scientific purposes. If you desire, you may not mention your name but give a specific code against CRF. Do not spend too much of time on any question.

Name: Sex: M/F

Approximate income p.m.
Occupation (Specify) eg: Bank Manager
Clerk
Doctor etc.,

Educational Qualifications:
State to which you belong:
Date of Testing:

SURFACE TRAIT * A

Item No.	Statement	Yes	?	No
1.	I am active most of the time	Yes	No	?
2.	I keep up my appointments with others mostly	Yes	No	?
3.	Mostly I do not get behind in my work .	Yes	No	?
4.	I work faster than most people	Yes	No	?
5.	I try to finish a work to my entire satisfaction	Yes	No	?
6.	I do not give up a problem because it is difficult	Yes	No	?
7.	I can work inspite of physical discomfort.	Yes	No	?
8.	When I do some work, I put my heart and soul into it	Yes	No	?
9.	I feel bored than I do not have much work to do	Yes	No	?
10.	I would like to be busy with some work all the time	Yes	No	?
11.	I generally work with full energy	Yes	No	?
12.	I can concentrate on a problem for a long time	Yes	No	?
13.	I like work requiring patience and carefulness	Yes	No	?
14.	I am regular and punctual in my work	Yes	No	?.
15.	I can work for long hours without feeling tired or bored.	Yes	No	?

SURFACE TRAIT * B

Item No.	Statement	Yes	No	?
1.	My interest change rapidly	Yes	No	?
2.	I let myself go and enjoy fully at a party	Yes	No	?
3.	I am happy most of the time	Yes	No	?

4.	I often make people laugh	Yes	No	?
5.	At times I become so enthusiastic as to arouse enthusiasm in others.	Yes	No	?
6.	I like work that has lot of excitement	Yes	No	.?
7.	I am often in a hurry	Yes	No	?
8.	I speak loudly and often gesture with hands	Yes	No	?
9.	I am quick to say what I feel like saying	Yes	No	?
10.	I am usually carefree and easy going	Yes	No	?
11.	I take an active part in conversations going around me	Yes	No	?
12.	I want to be well dressed and popular.	Yes	No	?
13.	I do not stop to consider the full consequences of my action and remarks on others	Yes	No	?
14.	At times I feel very happy without any reason	Yes	No	?
15.	I can easily make friendship with strangers	Yes	No	?

SURFACE TRAIT * C

Item No.	Statement			
1.	I keep most of my resolutions.	Yes	No	?
2.	In my childhood I had always obeyed my parents	Yes	No	?
3.	I feel ashamed when Immoral ideas come to my mind	Yes	No	?
4.	I think that moral laws should be observed more strictly by people.	Yes	No	?
5.	I believe that one should always speak the truth.	Yes	No	?
6.	I feel guilty and ashamed if I fail to keep a promise.	Yes	No	?
7.	I do not like dirty or sex jokes.	Yes	No	?
8.	I am not as dutiful as I should be.	Yes	No	?

9. I believe firmly that 'Honesty is the best policy" Yes No ?

10. I readily donate money for charities or a good cause. Yes No ?

11. I feel strongly that I must devote to social work or poor people. Yes No ?

12. I believe that success depends only on hard work and sincere efforts. Yes No ?

13. I believe that character is more important than intelligence. Yes No ?

14. I frequently analyse my behaviour to see if they are right. Yes No ?

15. I strongly feel it is a duty to help anybody in distress. Yes No ?

SURFACE TRAIT * D

1. When I disagree with my superiors or teachers I do not hesitate to express so. Yes No ?

2. I am considered to be proud and self willed. Yes No ?

3. I get annoyed by people who pretend that they are very superior Yes No ?

4. My secret ambition is to be a leader. Yes No ?

5. I think I am superior to others in certain respects. Yes No ?

6. I usually do not ask for advice or suggestions from my juniors. Yes No ?

7. I forcefully assert my views in a meeting or conversation with friends. Yes No ?

8. I like to have a leading role in organizing a function. Yes No ?

9. I would like a work where I can make people carry out my plans. Yes No ?

10. I feel happy when my friends or neighbours seek my advice. Yes No ?

11. I do not usually accept the suggestions from my superiors without questions. Yes No ?

12. I would like to have full control over my family affairs. Yes No ?
13. I cannot easily forget if I loose in a game. Yes No ?
14. I strongly dislike being told how I should do things. Yes No ?
15. I respect dignity of work rather than the salary. Yes No ?

SURFACE TRAIT * E

Item No. Statement

1. I feel that I am inferior to others. Yes No ?
2. I often think that I may not be successful in life. Yes No ?
3. I do not have much enthusiasm in my work. Yes No ?
4. Sometimes I feel that life is not worth living. Yes No ?
5. I do not feel confident of my ability. Yes No ?
6. I worry too much when some one in the family becomes ill. Yes No ?
7. I feel unhappy most of the time. Yes No ?
8. I am easily upset by small disappointments. Yes No ?
9. When I see some one sad I also feel sad Yes No ?
10. I feel very unhappy about the mistakes made in the past. Yes No ?
11. I often fear that others may dislike me. Yes No ?
12. I work slowly and leisurely. Yes No ?
13. I talk more slowly than most people. Yes No ?
14. I am easily moved to tears. Yes No ?
15. I do not get pleasure in things which make others happy. Yes No ?

SURFACE TRAIT * F

Item No.	Statement			
1.	My mood often changes without apparent causes.	Yes	No	?
2.	I am a quick tempered person (i.e., loose temper easily).	Yes	No	?
3.	I usually take much time to recover from a strong emotion or feeling (like anger, sadness etc.,)	Yes	No	?
4.	I usually have disturbed sleep.	Yes	No	?
5.	I cannot tolerate people who are unreasonable.	Yes	No	?
6.	I often wanted to run away from home or from my present circumstances.	Yes	No	?
7.	My feelings are easily hurt by the remarks and action of others.	Yes	No	?
8.	I frequently worry about possible misfortunes	Yes	No	?
9.	I often feel impatient if some one makes me wait.	Yes	No	?
10.	I am afraid to live alone.	Yes	No	?
11.	Some times I get so angry that I cannot say anything.	Yes	No	?
12.	I easily become discouraged and give up plans.	Yes	No	?
13.	I feel just miserable and helpless at times	Yes	No	?
14.	My likes and dislikes changes quickly.	Yes	No	?
15.	I am a nervous person	Yes	No	?

SURFACE TRAIT * G

1.	I can live alone far from any one else.	Yes	No	?
2.	I hesitate to meet important persons.	Yes	No	?
3.	It is hard for me to make new friends.	Yes	No	?

4.	I do not tell my troubles to others.	Yes	No	?
5.	I frequently feel self-conscious about my appearances end manner of talking.	Yes	No	?
6.	I frequently enjoy the evenings alone.	Yes	No	?
7.	I am troubled by shyness. .	Yes	No	?
8.	I can usually express myself better in writing than in speech.	Yes	No	?
9.	I avoid trouble rather than face it.	Yes	No	?
10.	I keep myself in the background on social occasions.	Yes	No	?
11.	I can concentrate on any problem for a long time	Yes	No	?
12.	I am often bored with people.	Yes	No	?
13.	I like to work alone.	Yes	No	?
14.	It is difficult for me to speak before an audience.	Yes	No	?
15.	I feel alone when I am in a group of people.	Yes	No	?

SURFACE TRAIT * H

Item No.	Statement			
1.	I feel that I have little to be proud of.	Yes	No	?
2.	I often think of myself as a failure.	Yes	No	?
3.	I often feel that I am inadequate to meet life situations.	Yes	No	?
4.	I have a lot of things about myself to be changed for better.	Yes	No	?
5.	I think I am not quite popular with people in general	Yes	No	?
6.	As I lack in confidence, I cannot decide things easily	Yes	No	?
7.	Some members of my family make me feel I am not good enough.	Yes	No	?

8. I get very upset if some one critises me. Yes No ?

9. People do not regard me as useful to have around. Yes No ?

10. I am often inclined to question my worth as a person. Yes No ?

11. When people pay compliments to me, I feel it difficult to believe. Yes No ?

12. I some times withhold my opinions for the fear that people may laugh and criticise me. Yes No ?

13. I am shy and self conscious in social situations. Yes No ?

14. I often catch myself pretending to be a better person than I am. Yes No ?

15. I find it difficult to do things to win the attention and approval of others. . Yes No ?

SURFACE TRAIT * I

1. I often suffer from poor appetite. Yes No ?

2. I often have fainting spells. . Yes No ?

3. I have more headaches than most people. Yes No ?

4. I some times feel a twitching in the face, hand or shoulders. Yes No ?

5. I worry a lot about catching disease. Yes No ?

6. I suffer a great deal from nervous exhaustion. Yes No ?

7. I am generally a sickly person. Yes No ?

8. I worry a great deal about my health. Yes No ?

9. Severe aches and pains make it impossible for me to concentrate on work. Yes No ?

10. I often have stomach troubles. Yes No ?

11. I constantly suffer from constipation. Yes No ?

12. I am often bothered by palpitation of the heart. Yes No ?

13.	I am troubled by cold hands and feet even in warm weather.	Yes	No	?
14.	I often have difficulty in breathing.	Yes	No	?
15.	I have hot or cold spells.	Yes	No	?

SURFACE TRAIT * J

Item No.	Statement			
1.	I will always keep to my promise, however difficult it might be.	Yes	No	?
2.	There are not occasions when I would loose my temper or get angry.	Yes	No	?
3.	I have never been late for my appointment.	Yes	No	?
4.	I love and like everyone in this world.	Yes	No	?
5.	I do sometimes talk about things that I know nothing about.	Yes	No	?
6.	Occasionally I do laugh at a dirty joke.	Yes	No	?
7.	I am completely free from prejudices of any kind.	Yes	No	?
8.	I never really like people praising me.	Yes	No	?
9.	It is not in my habit to indulge in gossip even occasionally.	Yes	No	?
10.	All my habits are desirable ones.	Yes	No	?
11.	Nothing ever irritates me.	Yes	No	?
12.	I do not hide anything from anybody.	Yes	No	?
13.	I never criticise anybody behind his back	Yes	No	?
14.	I never make loose talk.	Yes	No	?
15.	Honesty is always the best policy.	Yes	No	?

SURFACE TRAIT * K

Item No.	Statement			
1.	I have a tendency to voluntarily accept certain responsibilities.	Yes	No	?
2.	While standing erect with closed eyes, my body sways hither and thither.	Yes	No	?
3.	I lack initiative to do things on my own.	Yes	No	?
4.	I can selectively attend to different events satisfactorily.	Yes	No	?
5.	I have a tendency to uncritically accept ideas given by others.	Yes	No	?
6.	I can imitate the behaviours of others whom I know well.	Yes	No	?
7.	I do succeed at least temporarily in forgetting some unpleasant events.	Yes	No	?
8.	I have a tendency to express emotions freely	Yes	No	?
9.	Others do think that I am really an intelligent person.	Yes	No	?
10.	My imagination can become heightened on certain events.	Yes	No	?
11.	I have a tendency to obey orders without questioning.	Yes	No	?
12.	I can act well, if trained.	Yes	No	?
13.	I do accept as truth what is told by my superiors.	Yes	No	?
14.	I generally tend to be co-operative with others.	Yes	No	?
15.	I tend to be like others in dress manners etc.,	Yes	No	?

SURFACE TRAIT * L

Item No.	Statement			
1.	I am generally distrustful or suspicious of others	Yes	No	?
2.	I have a poor self-image of myself.	Yes	No	?

3. I sometimes assume awkward and clumsy postures while I speak. Yes No ?

4. I have a hesitation to start to speak to others. Yes No ?

5. I avoid direct looks at people I am speaking to. Yes No ?

6. I feel tense and uneasy while speaking to others. Yes No ?

7. I generally feel I am superior to the other person I am speaking to. Yes No ?

8. I feel artificial while talking to others. Yes No ?

9. I have difficulty in keeping a conversation sustained. Yes No ?

10. I am generally ineffective in presenting ideas and my views to others. Yes No ?

11. I generally keep away from people. Yes No ?

12. I generally keep away from people. Yes No ?

13. I feel uneasy to be amidst a group of people. Yes No ?

14. I do experience fear in speaking situations. Yes No ?

15. I feel uncomfortable to enter a room after all are seated. Yes No ?

The mean values for 542 normals alongwith S.D. for 12 scales are given by Raj (cited in Singh 1988).

Scale	Mean	S.D.
Activity	22.57	5.74
Cyclothymia	17.53	5.96
Depression	12.21	6.79
Emotional Instability	13.56	7.13
Introversion	14.29	6.29
Feelings of Inferiority	12.19	7.46
Pyschosomatic Disorders	5.61	5.38
Inter personal communication disorders	8.32	6.97
Super-ego	22.84	5.06
Dominance	18.05	5.72
Lie-scale	16.55	6.37
Suggestibility	18.24	4.71

APPENDIX B 3

REVISED WILLODGHBY QUESTIONNAIRE FOR SELF ADMINISTRATION

Instruction:

The question in this schedule are intended to indicate various emotional personality traits. It is not a test in any sense because there are no right or wrong answers to any of the questions.

After each question you will find a row of numbers whose meaning is given below. All you have to do is to draw a ring around the number that describe you best.

0 - means "No", "never", "Not at all" etc.,

1 - means "Somewhat", "Sometimes","a little" etc.,

2 - means "About as often as not", "an average amount"

3 - means "usually", "A good deal", Rather often" etc.,

4 - mean "Practically always", "Entirely" etc.,

1. Do you get anxious if you have to speak or perform in any way in front of a group of strangers? 0 1 2 3 4

2. Do you worry if you make a fool of yourself, or feel you have been made to look foolish? 0 1 2 3 4

3. Are you afraid of falling when you are on a high place from which there is no real danger of falling - for example, looking down from a balcony on the tenth floor? 0 1 2 3 4

4. Are you easily hurt by what other people do or say to you? 0 1 2 3 4

5. Do you keep in the background on special occasions. 0 1 2 3 4

6. Do you have changes of mood that you cannot explain? 0 1 2 3 4

7. Do you feel uncomfortable when you meet new people? 0 1 2 3 4

8. Do you day-dream frequently, i.e., indulge in fantasies not involving concrete situations? 0 1 2 3 4

9.	Do you get discouraged easily, eg., by failure or criticism?	0	1	2	3	4
10.	Do you say things in haste and then regret them?	0	1	2	3	4
11.	Are you ever disturbed by the mere presence of other people?	0	1	2	3	4
12.	Do you cry easily?	0	1	2	3	4
13.	Does it bother you to have people watch you work even when you do it well?	0	1	2	3	4
14.	Does criticism hurt you bodily?	0	1	2	3	4
15.	At a reception or tea do you go out of your way to avoid meeting the important person present	0	1	2	3	4
16.	Do you cross the street to avoid meeting someone.	0	1	2	3	4
17.	Do you often feel just miserable?	0	1	2	3	4
18.	Do you hesitate to volunteer in a discussion or debate with a group of people when you know more or less?	0	1	2	3	4
19.	Do you have a sense of isolation, either when alone or among people?	0	1	2	3	4
20.	Are you self-conscious before "superiors" (teachers, employers, authorities?)	0	1	2	3	4
21.	Do you lack confidence in your general ability to do things and to cope with situations?	0	1	2	3	4
22.	Are you self-conscious about your appearance even when you are well-dressed and groomed?	0	1	2	3	4
23.	Are you scared at the sight of blood injuries and destruction even though there is no danger to you?	0	1	2	3	4
24.	Do you feel that other people are better than you?	0	1	2	3	4
25.	Is it hard for you to make up your mind?	0	1	2	3	4

APPENDIX-B 4

THE S-C INVENTORY

1. It is rather difficult for me to make new friends.
2. I can be natural while at a party.
3. I am never at conflict with myself.
4. I enjoy mixing with people.
5. In social conversation I am usually a listener than a talker.
6. I can usually find a ready answer for remarks made to me.
7. When things go wrong I pity or blame myself.
8. I have a horror of failing in anything I want to accomplish.
9. I often cross the street to avoid meeting some people known to me.
10. I find it very difficult to speak in public.
11. I feel insecure within myself.
12. I find it hard to do my best when people are watching.
13. I can recover easily and quickly from social blunders.
14. I do not care much for what others think of me.
15. I Have difficulty in talking to most people.
16. I stay in the background in social gatherings.
17. I feel embarrassed to enter into assembly when all are already seated.
18. I have difficulty in saying the right thing at the right time.
19. I tend to worry over possible troubles.
20. I frequently feel thwarted because I am unable to do as I desire.
21. I think of myself as a successful person.

22. I am much affected by the praise or blame of many people.

23. My feelingsare rather easily hurt.

24. I can fare a difficult situation without worry.

25. I am hesitant about forming decisions.

26. I feel bored much of the time.

27. I can tackle new situations with a reasonable degree of assurance.

28. I am often unable to decide until it is too late for action.

29. I tend to be quick and certain in my actions.

30. I always feel that I can achieve the things I wish.

31. I feel no obstacle can stop me from achieving my final goal.

32. I am generally confident of my own ability.

33. I often feel that in life's competition I am generally the loser.

34. I frequently feel unworthy.

35. I worry over humiliating situations more than most persons.

36. I feel physically inferior of my friends.

37. I find it hard to continue work when I do not get enough encouragement.

38. I am bothered by inferiority feelings.

39. My people believe that I am as much a success as I could be.

40. I can play my best in a game or contest against an opponent who is much superior to me.

41. I am always ready to decide what my next step should me.

42. I can adjust readily to new situations.

43. I often feel rather awkward.

44. I am afraid that other people will dislike me.

45. My friends have made better life adjustment than myself.

46. I am happy go lucky person.

47. I can relax myself easily.

48. I blush very often.

49. When upset emotionally, I take much time to recover.

50. I day dream very often.

51. I am readily moved to tears.

52. When a critical situation is past; I often think what I should have done but didn't.

53. I often feel that my movements are clumsy.

54. I don't have initiative.

55. I usually work things out for myself rather than get some one to show me.

56. I am a dominant person.

57. I am usually discouraged when the opinions of others differ from my own.

58. I am often confused.

59. People frequently blame me for things unjustly.

60. I feel that my parents are disappointed in me.

61. I envy the happiness that others seem to enjoy.

62. Criticism disturbs me greatly.

63. I get discouraged easily.

64. I can get a job any day.

65. I seem to make friends about as quickly as other do.

66. I shrink from facing crisis or difficulty.

67. If given chance i could do something that would be of great benefit to the world.

68. If given a chance I would make a good leader of people.

69. I have several times given up doing a thing because I thought too little of my ability.

70. No one seems to understand me.

71. I need some one to push me through the things.

72. Life is a strain for me much of the time.

73. I have had blank spells in which my activities were interrupted and did not know what was going around me.

74. I am worried about sex matters.

75. I have periods of such great restlessness that I cannot sit long in a chair.

76. I refuse to play some games because I am not good at them.

77. I find it hard to keep my mind on a task or job.

78. I seem to be about as smart as most others around me.

79. I usually feel well and strong.

80. I think too much over everything.

81. My daily life is full of things that keep me interested.

82. I am certainly lacking in self confidence.

83. Almost always I find myself worrying about something or the other.

84. I have often lost good chances because I would not make up my mind soon enough.

85. I spend much of the time worrying over the future.

86. I do not tire quickly.

87. I think I have an attractive personality.

88. I don't think too long over my problems.

89. I have feeling of helplessness.

90. I cannot express my emotions freely.

91. When my friends criticize me I take it well.

92. I am a responsible person.

93. Generally I am quite sure of myself.
94. Usually I am dissatisfied with myself.
95. I have the feeling that I am just not facing things.
96. I have enough faith in myself.
97. I am often in low spirits.
98. I often feel helpless.
99. I am often disorganised.
100. I can usually make up my mind and stick to it.

THE S-C INVENTORY

ANSWER SHEET

1.	True	False	26.	True	False	51.	True	False	76. True False
2.	True	False	27.	True	False	52.	True	False	77. True False
3.	True	False	28.	True	False	53.	True	False	78. True False
4.	True	False	29.	True	False	54.	True	False	79. True False
5.	True	False	30.	True	False	55.	True	False	80. True False
6.	True	False	31.	True	False	56.	True	False	81. True False
7.	True	False	32.	True	False	57.	True	False	82. True False
8.	True	False	33.	True	False	58.	True	False	83. True False
9.	True	False	34.	True	False	59.	True	False	84. True False
10.	True	False	35.	True	False	60.	True	False	85. True False
11.	True	False	36.	True	False	61.	True	False	86. True False
12.	True	False	37.	True	False	62.	True	False	87. True False
13.	True	False	38.	True	False	63.	True	False	88. True False
14.	True	False	39.	True	False	64.	True	False	89. True False
15.	True	False	40.	True	False	65.	True	False	90. True False
16.	True	False	41.	True	False	66.	True	False	91. True False
17.	True	False	42.	True	False	67.	True	False	92. True False
18.	True	False	43.	True	False	68.	True	False	93. True False
19.	True	False	44.	True	False	69.	True	False	94. True False
20.	True	False	45.	True	False	70.	True	False	95. True False
21.	True	False	46.	True	False	71.	True	False	96. True False
22.	True	False	47.	True	False	72.	True	False	97. True False
23.	True	False	48.	True	False	73.	True	False	98. True False
24.	True	False	49.	True	False	74.	True	False	99. True False
25.	True	False	50.	True	False	75.	True	False	100. True False

SC INVENTORY

NORMS FOR COLLEGE STUDENTS (N=800)

Raw Score	Percentile	Raw Score	Percentile
60+	p88+	35	p43
59	87	34	41
58	86	33	39
57	84	32	37
56	83	31	35
55	82	30	32
54	80	29	31
53	79	28	29
52	77	27	27
51	76	26	25
50	74	25	24
49	73	24	22
48	71	23	20
47	69	22	18
46	67	21	17
45	65	20	15
44	62	19	13
43	60	18	12
42	58	17	10
41	56	16	9
40	54	15	8
39	52	14	7
38	50	13	6
37	48	12	5
36	45	11	4
		10	3

APPENDIX-B5

SOCIAL REACTION INVENTORY

This is a questionnaire to find out the way in which certain important events in our society affect different people. Each item consists of pair of alternatives lettered a or b. Please select the one statement of each pair (and only one) which you more strongly believe to be the case as far as you are concerned. Be sure to select the one you actually believe to be more true rather than the one you think you should choose or the one you would like to be true. This is a measure of belief; obviously there are no right or wrong answers.

Your answers to the items on this inventory are to be recorded on a separate answer sheet which is loosely inserted in the booklet. Remove this answer sheet now. Print your name and any other information requested by the examiner on the answer sheet; then finish reading these directions. Do not open the booklet until you are told to do so.

Please answer these items carefully but do not spend too much time on any one item. Be sure to find an answer for every choice. Find the number of the item on the answer sheet and encircle the letter A or B which you choose as the statement more true.

In some instances you may discover that you believe both statements or neither one. In such cases, be sure to select the one you more strongly believe to be the case as far as you are concerned. Also try to respond to each item independently when making your choice; do not be influenced by your previous choices.

Item:

1. (a) Children get into trouble because their parents punish them too much.

   (b) The trouble with most children now-a-days is that their parents are too easy with them.

2. (a) Many of the unhappy things in people's lives are pretty due to bad luck.

   (b) People's misfortunes result from the mistakes they make.

3. (a) One of the major reason why we have wars is because people do not take enough interest in politics.

   (b) There will always be wars, no matter how hard people try to prevent them.

4. (a) In the long run people get the respect they deserve in this world.

   (b) Unfortunately an individual's worth often passes unrecognized no matter how hard he tries.

5. (a) The idea that teachers are unfair to students is nonsense.

   (b) Most students do not realise the extent to which their grades are influenced by accidental happenings.

6. (a) Without the right breaks one cannot be an effective leader.

   (b) Capable people who fail to become leaders have not taken advantage of their opportunities.

7. (a) No matter how hard you try, some people just don't like you.

   (b) People who can't get others to like them don't understand how to get along with others.

8. (a) Heredity plays the major role in determining ones like you.

   (b) It is one's experience in life which determine what they are like.

9. (a) I have often found that what is going to happen will happen.

   (b) Trusting to fate has never turned out as well for me as making a decision to take a definite course of action.

10. (a) In the case of the well-prepared student there is rarely if ever such a thing as an unfair test.

    (b) Many times, exam questions tend to be so unrelated to course work that studying is really useless.

11. (a) Becoming a success is a matter of hard work; luck has little or nothing to do with it.

    (b) Getting a good job depends mainly on being in the right place at the right time.

12. (a) The average citizen can have no influence in government decisions.

    (b) This world is ran by the few people in power, and there is not much the little guy can do about it.

13. (a) When I make plans, I am almost certain that I can make them work.

    (b) It is always wise to plan too far ahead because many things turn out to be a matter of good or bad fortune any how.

14. (a) There are certain people who are just no good.

    (b) There is some good in everybody.

15. (a) In any case getting what I want has little or nothing to do with luck.

    (b) Many times we might just as well decide what to do by flipping a coin.

16. (a) Who gets to be the boss often depends on who was lucky enough to be in the right place first.

    (b) Getting people to do the right thing depends upon ability; luck has little or nothing to do with it.

17. (a) As far as world affairs are concerned, most of us are the victims of forces we can neither understand, nor control.

    (b) By taking an active part in political and social affairs the people can control world events.

18. (a) Most people don't realise the extent to which their lives are controlled.

    (b) There really is no such thing as "Luck".

19. (a) One should always be willing to admit mistakes.

    (b) It is usually best to cover up one's mistake.

20. (a) It is hard to know whether or not a person really likes you.

    (b) How many friends you have depend upon how nice a person you are.

21. (a) In the long run the bad things that happen to us are balanced by the good ones.

    (b) Most misfortunes are the result of lack of ability, ignorance laziness or all three.

22. (a) With enough effect we can wipe out political corruption.

    (b) It is difficult for people to have much control over the things politicians do in office.

23. (a) Sometimes I can't understand how teachers arrive at the grades they give.

    (b) There is a direct connection between how hard I study and the grades I get.

24. (a) A good leader expects people to decide for themselves what they should do.

    (b) A good leader makes it clear to everybody what their jobs are.

25. (a) Many times I feel that I have little influence over the things that happen to me.

    (b) It is impossible for me to believe that chance or luck plays an important role in my life.

26. (a) People are lonely because they don't try to be friendly,

    (b) There is not much use in trying too hard to please people, if they like you, they like you.

27. (a) Team sports are an excellent way to build character.

    (b) There is too much emphasis on athletics in high school.

28. (a) What happens to me is my own doing.

    (b) Sometimes I feel that I don't have enough control over the direction my life is taking.

29. (a) Most of the time I cannot understand why politicians behave the way they do.

    (b) In the long run the people are responsible for bad govt. on a national as well as on a local level.

SOCIAL REACTION INVENTORY

ANSWER SHEET

Name: Education: CRF No:

Age: Occupation: Date:

Sex:

1	a	b	9.	a	b	17.	a	b	25.	a	b
2	a	b	10.	a	b	18.	a	b	26.	a	b
3	a	b	11.	a	b	19.	a	b	27.	a	b
4	a	b	12.	a	b	20.	a	b	28.	a	b
5	a	b	13.	a	b	21.	a	b	29.	a	b
6	a	b	14.	a	b	22.	a	b			
7	a	b	15.	a	b	23.	a	b			
8	a	b	16.	a	b	24.	a	b			

Total Score:

APPENDIX - C

SPEECH GENERALISATION RECORD *

CASE NAME C.R.E. NO.

Date	Situa-tions	Number of words spoken	Number of words stuttered	Feelings i.e. anxity tension or confidence	Percentage of words stuttered

Speech generalization record used to be filled by the subject on daily basis.

* Based on Perkins (1973b).

APPENDIX-D

Showing the Percentage of Stuttering and Syllable per minute for each subject under different conditions

Subjects	Base line		Relax PMR		RST		PT		AF		AT		After Therapy		Follow Up	
	R	SP	R	SP	R	SP	R	SP	R	SP	R	SP	R	SP	R	SP
CS	16.61	18.03	20.9	14.36	1	0	-	-	-	-	0	0	0	0	0	0
	62	77	55	87	119	126	-	-	-	-	111	103	222	206	257	277
RVS	7.84	10.51	7.11	8.2	0.34	0	-	-	-	-	0	0	0	0	0.45	0
	138	123	148	128	147	144	-	-	-	-	139	127	208	203	220	248
DP	23.65	20.58	0.27	11.02	0	0	-	-	-	-	0	0	0	0	-	-
	60	69	179	132	133	129	-	-	-	-	143	138	205	185		
UST	18.36	19.90	8.94	9.87	0	0	-	-	-	-	0	0	0	0	-	-
	75	60	95	81	162	131	-	-	-	-	146	133	197	176		
RPM	11.80	28.94	4.79	12.63	0	0	-	-	-	-	0	0	0	0	-	-
	108	64	137	91	136	96	-	-	-	-	119	108	220	210		
BHN	7.78	11.08	5.86	12.62	0.37	0	-	-	-	-	0	0	0	0	-	-
	184	174	179	144	134	137	-	-	-	-	161	145	215	218		
BJ	10.44	9.67	8.65	9.72	1.05	1.07	-	-	-	-	0	0.34	0	0.34	0.50	0.55
	102	103	133	108	143	141	-	-	-	-	163	145	175	160	197	172
NRG	11.79	14.33	5.96	7.00	0	0.89	-	-	-	-	0.22	0	0	0	0	0.38
	194	178	193	179	128	162	-	-	-	-	226	192	226	204	244	159
BVB	10.04	15.70	4.02	6.69	0.36	0	-	-	-	-	0	0	0	0	0	0.56
	156	110	149	120	137	118	-	-	-	-	159	135	196	180	175	176

CONTI

Subjects	Base line		Relax PMR		RST		PT		AF		AT		After Therapy		Follow Up	
	R	SP	R	SP	R	SP	R	SP	R	SP	R	SP	R	SP	R	SP
DAS	2.65	15.09	8.14	10.64	0	0	-	-	-	-	0	0	0	0	-	-
	188	120	111	108	129	136	-	-	-	-	129	136	205	195		
MNS	22.4	26.47	2.22	5.04	0	0	-	-	-	-	0	0.37	0	0	0	0
	79	71	203	170	202	138	-	-	-	-	205	137	215	212	223	200
NS	9.34	9.97	2.93	5.96	0.36	0.36	-	-	-	-	0	0	0	0	0.88	0.47
	121	107	170	143	140	140	-	-	-	-	153	150	216	182	225	209
ARH	11.19	13.85	12.23	12.73	5.53	5.06	1.11	0.69	0.61	0.3	10.41	1.04	0.36	0.38	0.71	0.38
	175	142	209	161	121	99	111	99	102	98	121	122	211	218	280	239
APA	30.55	20.74	4.37	3.71	3.13	3.74	2.12	2.57	0.37	0.35	0.34	0	0	0	0	0
	75	90	126	135	103	93	112	118	110	127	149	146	206	204	212	248
BMH	6.29	9.41	9.13	10.64	4.94	5.03	2.50	3.28	0	0	0.31	0.38	0	0		
	176	119	115	93	126	113	100	107	110	88	157	133	225	213	-	-
MCR	15.07	16.69	8.63	10.61	11.50	11.48	5.73	5.73	0.4	0.47	0	0	0.8	0.79	1.5	1.8
	108	70	139	113	126	170	122	107	118	121	128	114	248	252	266	222
KS	3.37	15.95	1.88	10.71	2.74	6.41	1.74	1.26	0	0	0	0	0	0	-	-
	223	162	212	168	201	186	187	108	184	173	187	184	256	237		
HCS	11.58	10.97	6.14	6.98	6.58	7.02	2.36	3.49	0	0	0	0.35	0.23	0.92	-	-
	146	130	119	136	129	126	146	148	158	154	169	143	221	219		

PMR = PROGRESSIVE MUSCULAR RELAxATION; RST = RHYTHMIC SPEECH TECHNIQUE
PT = PROLONGATION TECHNIQUE AF = AIR FLOW TECHNIQUE
AT = ASSERSSION TRAINING R = READING
SP = SPONTANEOUS SPEECH