CHAPTER-3

RELATED STUDIES
The review of literature has been attempted to get a better insight into the various aspects of treatment methods and also to get a broad picture of various researches related under investigation.

In spite of decades of research on stuttering there are few unequivocal findings. Particular attention is paid to the lack of one accepted definition of stuttering. Other issues concern the unit of stuttering, inter and intra stutterer variability, the overt and covert features of stuttering, objective and subjective measures in stuttering research and sampling of material for study. These are some of the problems which pertains to study of the nature of stuttering (Wahlaus, 1990).

Bloodstein (1977) indicates that the most basic question about stuttering posed by researchers 25-50 years ago have been answered categorically. There is little convincing evidence of distinct constitutional or personality differences between stutterers and non-stutterers, however, genetic studies suggest that stuttering, like most other traits, is a product of both heredity and environment factors. Research on the relationship between normal disfluency and stuttering in children has some chance of yielding information on the origin of stuttering, and although there is little consensus of opinion on the nature of stuttering blocks, the controlled research now in progress may produce data indicating whether devices for eliminating stuttering blocks radically and quickly are worth while.

Surveys of all available studies that have a direct and indirect bearing on the problem of the present study are briefly described below.

Stuttering can begin at any age, its onset in most cases is reported to be between the ages of two and five years (Silverman, 1992). The age of onset refers to the age at which an informant reports that he or she first concluded that a child's repetitions and other hesitations probably were abnormal.

Yairi and Ambrose (1992) interviewed parents of eighty seven pre-school children within a year of a stuttering diagnosis and found that onset tended to occur
earlier than was previously thought and was sudden and severe in many cases. About twice as many as girls stuttered and there was a positive relationship between severe stuttering and sudden onset. Again Yairi and Ambrose (1992) conducted a pilot study on twenty seven pre-school aged children and followed for a minimum of two years shortly after they began stuttering. Children continued to be followed for varying periods up to twelve years. Eighteen of the twenty seven subjects received a few speech treatment sessions during the initial period of the study whereas nine children did not receive direct treatment. Results indicated that for the two subgroups there was a marked deceleration overtime in the mean frequency of stuttering. Individual subjects data showed considerable variability in the longitudinal development of disfluency but most subjects followed the patterns of the group means. Much of the reduction in stuttering took place during the early stages of the disorder, especially near the end of the first year post onset.

In another study Schwartz and Zebrowski (1990) studied the behaviours at the onset of stuttering. The purpose of their investigation was to identify speech and non-speech behaviours associated with the stuttering of children close to the onset of their problem. Ten stuttering children (nine boys and one girl) were identified through parent interviews. Fourteen associated speech and non-speech behaviours and speech disfluency types were identified and quantified from each of the ten subjects. The fourteen associated behaviours and speech disfluency types were further reduced to form three indices (a) Sound prolongation index (b) Non-speech behaviour index (c) Behaviour variety index. Results indicated that all children exhibited speech and non-speech behaviour in association with their stuttering. In addition, chronological age did not significantly correlate with any of the three indices investigated. Findings are taken to suggest that the quantification of speech disfluency type and the speech and non-speech behaviours associated with stuttering are more sensitive than chronological age as indicators of the development of stuttering.

Prevalence of stuttering reflects the information as to how many persons continue to stutter, either overtime in general or within a particular age range. In general population, prevalence is usually pegged up about 1% (Van Riper, 1982). Enderby and
Philipp (1986) reviewed various reports and estimated a prevalence of 1.07% in the United Kingdom. Van Riper and Emerick (1984) cite slightly less than 1% of the population in the United States has a stuttering problem.

Montgomery and Fitch (1988) conducted a study to determine the prevalence of stuttering in the hearing-impaired school age population. Backus (1938) and Harms and Malone (1939) found a low incidence of stuttering in the hearing impaired population in a survey conducted almost fifty years ago. In the present survey seventy seven school representing a total of 9936 students were enrolled out of which twelve hearing impaired students were reported to stutter, only three students were reported to stutter in the oral mode, six in the manual communication and three in both sides. The results indicated that the prevalence of stuttering in the hearing impaired population is 0.12%.

**STUTTERING AND ANXIETY**

Anxiety and its role in stuttering have been the source of considerable debate for generations of clinicians. Anxiety and related problems has occupied the attention of many Psychologists. Numerous studies have been conducted related to anxiety and related emotions. Some notable studies included the works of Craig (1990), Woods (1996), Williams (1957), Shrum (1967), Van Riper (1973), Bloodstein (1975), and Ham (1986). A tremendous increase in anxiety and stuttering research literature has taken place in the past few decades. There is a huge literature and output of research on the relationship of Stuttering and Anxiety. Among the research literature on Anxiety and stuttering relationship, some excellent investigation includes the work of Blood et al (1997); Miller, et al (1992), Leith, et al (1983); Caruso, et al (1994) and Prins, et al (1991).

In 1990, Craig in his paper “An Investigation into the relationship between anxiety and stuttering” expressed the relation between self-reported anxiety and stuttering. In his study a large number of stutterers were assessed on state and trait anxiety before, and on trait anxiety after, intensive behavioural treatment. Their levels of anxiety were compared to those of nonstutterers controls matched for gender age, and
occupational states. Results showed that persons who stutter had significantly higher levels of fear (state anxiety) in a demanding speech situation. They were also shown to have higher levels of chronic anxiety (trait anxiety) than matched controls. However, trait anxiety measured after treatment was within normal levels. The study does not allow the conclusion that anxiety causes stuttering, but expresses that these results do have an important implication for the management of stuttering.

People who stutter are frequently viewed as more anxious and depressed than non-stutterers. Further, a strong and pervasive stereotype is held by non-stutterers that people who stutter are nervous and tense. In a study by Miller and Watson (1992), they examined self perception of general state and trait anxiety, depression, communication attitudes in matched groups of stutterers and non-stutterers. Results disagree the assertion that people who stutter are more anxious or depressed than those who do not. Anxiety and depression are not related to self rating of stuttering severity. Communication attitude is negative for this group of people who stutter and becomes increasingly negative as self rating of stuttering becomes more severe. People, who stutter grouped by severity rating, differed in the strength of relation between measure of communication attitude, anxiety and depression. Findings suggests that the anxiety of people who stutter is restricted to their attitude towards communication situation and that is a rational response to negative communication experiences.

Craig (1994) criticises the previous research of Miller and Watson (1992) which concluded that there were no significant differences between stutterers and non-stutterers on measures of anxiety and depression. It notes confounding effects of previous treatment, self diagnosis and low number of subjects. It also offers guidelines for conducting more valid research on this area. But Miller and Watson (1994) refutes Craig's claim that results were confounded by subjects previous treatment self diagnosis, and low number.

In a study, Leith, et al (1983) found out that one of the most commonly feared talking situation among stutterers is speaking on the telephone. They interviewed 130 stutterers who feared speaking on the telephone, regarding their fear of telephone
calling and answering the age at which they began to fear calling and answering and their fear reaction to eight specific telephone calling situations. Subjects included male and female, black & white, and mild, moderate and severe stuttering groups. Results indicated that telephone calling was judged to be more feared than telephone answering with the exception of the black stutterers. When general reactions to the eight telephone situations were considered, the black stutterers had the most severe fear reaction while the male and moderate stutterers had the least severe reaction.

In another study Woods et al (1996) studied 256 college students and found that there is a relationship between the presence of nervous habits, tics and stuttering and self reported awareness of bodily sensations and general anxiety. Brown and Hull (1942) used Speech Attitude Scale with fifty nine older stutterers to collect data regarding the speech attitude of the stutterers. Their scores were compared with those reported for the standardization group. They reported that as a group the stutterers scores were significantly lower, which was interpreted to suggest that stutterers were less confident and enthusiastic about speaking, less poised in doing so and enjoyed it less.

Stress is another factor, which is found to produce a breakdown in speech fluency. Both normal speakers and persons who stutter of all ages tend to be more disfluent when feeling stressed. There have been reports of persons beginning to stutter after having undergone a traumatic experience (Silverman, 1992). Such an incident is likely to result in a relatively large increase in the amount of anxiety a person is experiencing.

Blood et al (1997) documented the effect of perceived daily stress on subjective and objective measure of disfluencies among twelve adults who stutter and twelve adults who did not. The subjects who were under-graduate students participated in a prospective research study for twenty two days. Measures of life stress, daily stress and self rating of fluency were obtained. Subjects were trained in rating their fluency levels and perceived daily stress levels. Results revealed a significantly higher number of daily stresses endorsed by subjects who stuttered. Subjects who stuttered also
displayed a significantly greater number of disfluencies and higher self rating of disfluencies on high stress days. No significant differences were found between the total mean scores for life stress or impact scores for daily stress for the nonstutterers. Data suggested that day to day variations in stuttering could be related to multiple minor daily stresses in some person who stutter.

Caruso, et.al (1994) investigated the effects of speed and cognitive stress on the articulatory coordination abilities of adults who stutter. Cardio vascular (heart rate, blood pressure), behavioural (disfluencies, errors, speech rate) and acoustic (word duration, vowel duration, consonant vowel transition duration) measures for nine stutterers and nine non-stutterers were collected during performance of the Stroop colour word task, a well established and highly stressful cognitive task. Significant differences were found between the two groups for heart rate, word duration, vowel duration and speech rate. Inaddition stutterer produced more disfluencies under speed, plus cognitive stress versus speed stress or a self-paced reading task. These findings demonstrate that the presence of cognitive stress resulted in a greater temporal disruption and more disfluencies for stutterers than for non-stutterers.

In another study by Kraalmaat, et.al (1991) the social anxiety among 110 stutterers was compared with the measures of two control groups (110 social phobia patients and 110 normal persons). Results did not support the notion of social anxiety as an essential part of stuttering. Prins, et.al (1991) studied the occurrence of stuttering on stress-peak and unstressed syllables in connected speech in ten young adult stutterers. Results showed a significant coincidence of stutter events and syllabic stress peaks, particularly polysyllabic words. Stuttering on the first three words on principle clauses, however, appeared independent of syllabic stress.

**Studies on Muscle Tension**

Review of the work has been done on the direct application of muscle tension reduction procedures to the treatment of stuttering. Williams (1957) views that the chain of events, which culminate in the overt spoken stuttering, is based on this increased
muscle tension and that the overt stuttering is due to the fact that speaker's speech related musculature is too physically tense to procedure fluent speech. Williams (1955) also studied the electro-myogram (EMG) recordings of Masseter Muscle Tension in stutterers and non-stutterers, and showed obvious differences between the two groups. In a more directly relevant study, Shrum (1967) showed that stutterer's anticipatory increases in muscle tension before stuttering were greater than before non-stuttered speech and also greater than anticipatory responses by normal readers. Normals did not differ in this regard from stutterers engaged in non-stuttered speech.

Muscle tension has largely been ignored in the research literature on stuttering, the majority of proposed therapeutic procedures dating from 1800s to the present time have involved muscle relaxation as a significant aspect, particularly relaxation of speech related musculature (Van Riper, 1973, Bloodstein, 1975).

There is a universal agreement that the disorder is due to excessive muscle tension immediately prior to and during moments of stuttering. Hence any intervention strategy that causes a client to be more relaxed while speaking should reduce his/her stuttering severity. This strategy were specifically intended either to cause clients to be more relaxed than usual when entering speaking situation or to train them to relax parts of their speech musculature when they feel tension in them. One such strategy is progressive relaxation (Jacobson, 1938) where clients are taught to relax various muscle group's. Van Riper (1973) has indicated that relaxation historically occupied a place in stuttering therapy and believed that the basis of all treatment for stammerers should be relaxation. But reviews of relaxation as a primary therapy have not reported particularly impressive or with supportable results (Bloodstein, 1975, Ingham, 1984). Bloodstein (1975) was of the opinion that relaxation was primarily used as a sub procedure and not as a major therapy.

Deep, whole body or progressive relaxation had been used for many years in the therapies and has been associated mainly with Jacobsons (1938). Ham (1966) has published a version of Jacobson style relaxation therapy.
In a study Metha (1985) compared the effectiveness of abbreviated and full relaxation therapy in systematic desensitization in male stutterers. Ten subjects were given abbreviated relaxation (head, face, shoulders and breathing) while another ten were given full relaxation training. Results showed that subjects who received full relaxation made more improvement in their stuttering condition than subjects who received abbreviated relaxation training.

It is true that children do not usually require and do not respond well in progressive relaxation therapy. However relaxation as a therapeutic technique can be used profitably with any age.

When stutterers behave in an assertive manner in situations where they usually tend to stutter relatively severely, they are likely to become less anxious than usual and, consequently are likely to stutter less severely than they usually do. Therefore Assertiveness training is used as an effective technique for enhancing interpersonal skills, and facilitates the development of a mental state, which is not compatible with anxiety.

Schloss, et al (1987) have proved assertiveness training procedures to be very effective in working with a variety of clinical population. The study evaluated the effectiveness of an assertiveness training programme that included instruction, modeling, behavioural rehearsal, feedback, social reinforcement and homework. The results indicated substantial increases in the target behaviours as well as improvement in subjective ratings of baseline and post-training interviews.

Much of the early research on stutterers focussed on respiration because abnormalities in breathing were often observed clinically and breathing irregularities were quite easy to measure. Many stutterers exhibit abnormalities in respiratory functioning during the moments of stuttering. Attempts have been made to teach them to breathe more normally [Azrin, Nunn & Frantz (1979). Harisinghani (1990)]. The clients were taught to breathe in a smooth manner to pause at natural juncturing points, to breathe deeply, to plan ahead for the content of speech, and to relax chest and neck muscles (Azrin, Nunn & Frantz 1979).
Waterloo & Gotestam (1988) studied the experimental evaluation of the regulated breathing method explained by Azrin & Nunn (1974). Thirty two subjects were randomly assigned either to treatment or to a waiting list control group. The treatment was completed during one single session of 2-3 hours. Both frequency of stuttering and rate of speech were measured before and after treatment and on follow ups two, three and eight months later. Both obstructive and unobstructive measures of speech were recorded. At the eight months follow-ups, stuttering in the treatment group was found to be significantly less than in the control group, and also significantly less than before treatment.

In another study Mc Intyre, Silverman and Trotler (1974) reviewed an analysis of video taped interviews with six males, 15-52 years old stutterers who had practiced Transcendental Meditation (TM) for 2 weeks to 3½ years. Results indicated that all subjects had a reduction in stuttering, and reported being more relaxed and feeling better about themselves in general.

Another area of research which received much attention were the different measurements used in evaluating fluency and fluency disruption. These measures occur frequently as baseline data against which therapy progress is compared.

In a study by Cordes and Ingham (1996) ten speech-language pathology students judged five second audio visually recorded speech intervals on stuttered and nonstuttered in group and single subject experiments. Results showed that judgement accuracy tended to increase after training, both for speakers in the training programme and unfamiliar speakers. Slight increases in interjudge and intrajudge agreement after interval judgement training were also found.

In another study Ingham, Cordes and Gow (1993) investigated two experiments interval-by-interval interjudge and intrajudge agreement for stuttered and nonstuttered speech intervals and found that training of judges could improve reliability levels. Judges with relatively high intrajudge agreement also showed relatively higher interjudge agreement and interval-by-interval interjudge agreement was not influenced
by order of presentation of judgement task. Ingham, Cordes and Finn (1993) replicated and extended the results of the previous study by Ingham, Cordes and Gow (1993) that investigated time interval judgement of stuttering. Results confirmed earlier findings that interjudge agreement is higher for these interval recording tasks than has been previously reported for event based analysis of stuttering judgements or for time interval analysis of event judgements. Results also confirmed an earlier finding that judges with intrajudge agreement levels of 90% or better show higher interjudge agreement than judges with lower intrajudge agreement scores. But this study failed to find differences between relatively experienced and relatively inexperienced student judges, and between judgements made and the agreement levels achieved by judges from two different clinical research settings.

Cordes and Ingham (1994) in their study included six groups of judges, three experimental and three control group (In each group N=5), to categorize consecutive five second speech intervals as stuttered or non stuttered on four judgement occasion. Between the second and third occasion each experimental group was trained to categorize correctly one of three sets of speech intervals agreed intervals, which has been unanimously prejudged to be stuttered or non stuttered, disagreed intervals, which had been prejudged to be stuttered by approximately half of a large group of judges or randomly selected intervals, including both agreed and disagreed intervals. Results replicated and extended an earlier finding of improved interjudge agreement for judges trained with highly agreed intervals (Ingham, Cordes & Gow, 1993). Training with highly agreed intervals was shown to be more effective than equivalent exposure to those intervals without feedback, and training with highly agreed intervals was shown to be more effective than training with or exposure to poorly agreed or randomly selected intervals.

Finn and Ingham in 1994 investigated the method of estimating the reliability and validity of stutterer's self-training of how natural their speech sounds and how natural they felt about the amount of attention they were paying to the way they were speaking. Twelve adult stutterers were instructed to self-rate the speech and feel naturalness of their speech under a variety of rhythmic stimulation condition across repeated rating
occasion. The results showed that stutterers were relatively consistent and valid self-raters of speech quality and levels of speech monitoring.

**Stuttering and Therapy**

An effort is made below to present a brief account of literature related to stuttering therapy. It is evident that clinicians are able to offer many stutterers a considerable amount of help through therapy. It is a challenge to try to arrive at a actual therapeutic capacity. Speech pathologists explain two conflicting impressions about the effectiveness of stuttering treatment. One is that stuttering is a relatively difficult problem to treat at least in adults. The other is the impression that almost any kind of therapy is liable to work with stutterers (Bloodstein, 1975).

Operant conditioning has lent itself to use in clinical work with stutterers in a number of different ways. A large number of laboratory demonstrations of reduction in stuttering by contingent application of such stimuli as shock, noise, verbal disapproval, and time-out from speaking etc., have been used by operant conditioners. Charlow and Packman (1997) examined whether Time Out (TO) could reduce stuttering in children, and if so, whether children who respond to TO adopt an unusual speech pattern to control their stuttering. Three school age males (10-11 years) spoke a single ABA experiment. In the B phase, a red light was illuminated for five seconds, when the subject stuttered, during which time, the subject stopped talking. Two of the three subjects showed clear reduction in stuttering in response to TO.

In another study by James and Ingham (1974) fourteen (15-29 years) male stutterers were exposed to four conditions base rate, and time out plus enhanced expectancies of improvement, base rate and time out plus allayed expectancies of improvement. Subject expectancies of improvement were manipulated by the administration of place board instructions. Results indicated that Time Out produced significant reduction in frequency of stuttering under both expectancy conditions and that the efficacy of the procedure under one condition was not significantly different from its efficacy under the other.
Ryan, Ryan and Van (1995) conducted a study on two operant speech treatment programmes for establishing fluent speech. Delayed Auditory Feedback and gradual increase in length and complexity of utterance were compared with twenty-four elementary secondary level students. Both programmes produced important improvement in fluency in a reasonable time period and resulted in similar levels of transfer and maintenances. In another study by Onslow et al. (1990) four stutterers, aged 3-5 years, received treatment based on parent administered, operant verbal stimulation. Data showed that intervention, coupled with a programmed maintenance schedule, reduced stuttering and accompanied increase in syllable output. Findings suggest that cases of early stuttering might be managed effectively by parents, with limited expenditure of clinical time. Onslow et al. in 1994 reviewed a parent conducted programme of verbal response contingent stimulation and was effectively used to reduce stuttering to near zero levels in twelve children (below five years). Treatments were completed in a median of 10.5 one hour clinic session and 84.5 days.

Another approach to stuttering therapy that has been developed recently is the use of Behaviour Modification Technique. Behaviour therapists have attempted to view the problem of stuttering as a matter of learned responses and to manipulate these response by applying basic principles that have been discovered by careful laboratory investigation of learning and behaviour.


Wagaman et al (1995) in a 3.5 year follow up study, conducted a behaviour treatment of stuttering for children, aged 9-14 years, which involved awareness training, use of competing responses, and social support. Six of the seven participants continued to be at or below the criterion of three percent stuttered words. Stuttering for one child remained for below the base line. In another study Wagaman et al. (1993)
given a simplified treatment programme for stuttering for eight children which included awareness training, training a response incompatible with stuttering, and social support. The home treatment programmes was effective in reducing stuttering to less than 3% for all subjects. Maintenance of effects was seen at ten to thirteen month post treatments.

James, Ricciardell, Hunter and Rogers (1989) were randomly assigned to two treatment formats for twenty adults and adolescents consisting of either sixteen two hours session of fluency training administered within a concentrated period of four consecutive days (intensive treatment) or two hour session per week for eight weeks (spaced treatment). Frequency of stuttering and rate of speaking were repeatedly assessed from speech samples obtained in six different clinic and extra clinic speech settings. The efficacy of treatment, subject compliance and communication attitude were also measured. Fluency training produced significant improvements in speaking rate and communication attitudes for both treatment formats. Both formats were found equivalent on all measures. However, maintenance of generalization effects was uneven across settings, suggesting the possible need for differential levels of training for different speaking situations.

Blood's (1995) paper evaluated the efficacy of a behaviourual cognitive treatment programme for adults who stutter. The programme combines a commercially available computer-assisted biofeedback programme for the reduction of stuttering and a relapse management programme for counselling and attitude change. Four adults who stutter between the ages of 20-25 years, participated in a study with multiple base line across individuals. The initial treatment was conducted in an intensive time block, followed by extended treatment session. Results showed that subjects reduced their disfluencies to below 3% stuttered syllables and maintained those changes at the six and twelve months. Measures of attitude changes were also assessed and showed that increases in positive feelings and attitudes were maintained at follow-ups.

Craig et al (1987) presented a behaviour therapy approach to treatment for stuttering based on outcomes data on 191 adult stutterers, treated over six years. This
cognitive-behavioural approach to therapy emphasizes the importance of changing in appropriate thought patterns and attitude in the process of successful therapeutic change. Following training, patients are treated on an outpatient basis to encourage generalization of the skills (learned in the clinic) to home work and school environment. Patients are introduced to concepts of self control and given schedules of therapy practice to enhance long term survival. It was noticed that the programme had been effective with stutterers, and that rate of relapse comes down substantially.

Laudouceur et al (1989) evaluated a multidimensional treatment of stuttering which includes awareness training, regulated breathing and cognitive restructuring for nine 19-37 old with mild, moderate and severe month follow up. No severe stutterers achieved clinical improvement. A behaviour modification technique was utilized by stuttering problems. Behaviour (percentage of syllables stuttered and rate of speech) and cognitive (self-efficacy perception, locus of control and Erickson scale of communication Attitude) measures were taken using three multiple base line designs across subjects. Results show that all mild and moderate stutterers were clinically improved at the end of the treatment and at the six months follow up. No severe stutterers achieved clinical improvement.

A behaviour modification technique was utilized by Rustin (1978) in a group treatment for teenage stammerers. The initial course, which began in 1974, used timed syllabic speech to control the stammer. This technique worked well throughout the course, but participants showed a high failure rate at the three month follow up. The technique was therefore changed to slowed speech. All participants could read, speak and understand English, were self-motivated to extinguish the stammer, and were approaching, fourteen years of age. Subjects were assessed before, during and after the course on the personal questionnaire. In addition to slowed speech, the course used relaxation, role drama, time out and video recording, parental involvement was welcomed. It was suggested that the following components may be important in the success of the course: (a) changing the stutterers view of his/her defect so that he/she assumes the major responsibility for progress (b) organizing treatment so that the child can generalize newly acquired skills to other people in outside situations and (c) giving the child expertise in the appropriate use of fluency.
Many researchers believed that group therapy had the greatest role in the alleviation of the problem of stuttering. In a study by Wokaba (1983) twenty sessions of group play therapy were conducted with children who stutter in order to improve their stuttering and to promote their development in social adaptation. Follow-up surveys were made six months and five years after therapy. As therapy progressed, a definite process of change was observed in each child from periods of anxiety, appearance of aggressive behaviour, frequent occurrence of aggression behaviour, fluctuation in stuttering occurred as cooperative play with other children was established. This was followed by a decrease in stuttering. The appearance of aggressive behaviour during therapy is thought to be a major significance for the disappearance of stuttering and for interpersonal relationship. The follow-up survey showed that both stuttering and social adjustment had improved, indicating the effectiveness of therapy.

Fawcus (1970) described intensive group therapy programmes for stammerers. Adult groups contained 8-12 members, while smaller groups organized by ages were recommended for children. Each patient was interviewed and the severity, frequency and type of a stammer were rated. A questionnaire was completed for the patient's assessment of his speech problem, anticipated difficulty in fifty speech situations, previous treatment, and personal and family background. Treatment focussed on the modification of abnormal speech behaviour by slow syllable timed speech and block modification of speech avoidance objective evaluation of audience reaction and scientific study of his own speech contribute to change in the patient's attitude. Group therapy was considered to provide interpersonal relationships, realistic stress and the opportunity for the positive reinforcement. Results of the programmes are considered promising.

Dorgan and Dorgan (1973) critically examined indirect and direct therapies of stuttering, proposes a developmental definition of stuttering and formulates a total family therapy approach to stuttering in which speech therapist's role was expanded to include a co-therapists in family treatment. The approach was holistic emphasizing the child as a bio-psycho social system within the context of the family and focussing upon the process of identification. In another study by Kelly (1995) features of mother's and
father's interaction with children who stutter were reviewed. Similarities and differences in the role played by fathers and mothers in children's communicative development are discussed.

Review of literature reveals a great variety of researches involving the use of Delayed Auditory Feedback (DAF) effect in the treatment of stuttering. Curlee and Perkins (1973) conducted a ninety hours treatment programme with twenty seven 13-52 years old stutterers. The treatment conversational rate control therapy consisted of a conditioning programme that employed delayed auditory feed back (DAF) to establish slow stutter free speech that was subsequently increased in speed to a normal rate. Stimulus control was then generalized to the everyday environment. Recordings of easy and difficult speaking situation were made before and after treatment. Stuttering was substantially reduced for all subjects both in the clinic and in everyday speaking situation.

Perkins (1973) attended thirty stutterers and spent ninety hours in treatment, first in a DAF based shaping procedures to develop fluent speech, and then in a structural programme to generalize the fluency acquired in the clinical setting to a variety of everyday speaking situations. The core of Perkins generalization programme was "changing condition so gradually that the stutterer was able to maintain the feeling that speaking is easy". In his second study Perkins (1973) added two procedures. Breath stream management and prosody management – the development of normal sounding speech. Subjects were retained from the first study for the second only if they met rather strict criteria for continued improvement. Session by session these subjects received between ninety and one hundred and eighty hours of treatment. Differences between pre-treatment and post-treatment were reported for both studies in stuttering frequency and speech rate, and significant reduction in stuttering frequency was demonstrated.

In another study by Ingham and Andrews (1973) four different groups of ten stutterers who spent twenty one days in a residential setting, during which Delayed Auditory Feedback (DAF) procedures were instituted and subjects were reinforced with
tokens for changing their speech in accordance with DAF procedure. Token could be exchanged for items such as meals and cigarette. In the generalization stage, subject were required to go out from this stage and collect thousand words cassette tape recording of their speech in four situations of increasing difficulty. Results indicated that at the formal assessment nine months after treatment 60% of the subjects were free of stuttering, however, when assessed after fifteen months, most had shown some relapse.

In the past few years different methods of treatments have been tried for the management of stuttering. Healey et al (1995) studied ten factors that school clinicians should consider in determining treatment of children who stutter include increasing clinicians confidence in treating stuttering, setting long-term and short-term goals, involving parents and teachers in treatments and determining when the child is ready to be dismissed from treatment.

Onslow et.al (1996) assessed the speech of twelve adults in prolonged speech treatment prior to treatment and after discharge. Results showed that stuttering was eliminated without using unusually slow or unnatural speech patterns and many clients maintained stutter free speech at high rates of speech. Speech rate correlated to perceived post treatment speech naturalness.

In another document Onslow et.al (1992) stated that unusual speech quality may result from stuttering treatments that are based on prolonged speech. However empirical information concerning the speech quality associated with those treatments was lacking. The study was designed to contribute such empirical information. Results indicated that speech quality of those clients remained stable at the conclusion of their treatment programme. Further, there was a significant, positive correlation between pre-treatment speech measures and measures of speech naturalness made after the establishment of stutter-free speech. The subjects whose pre-treatment stuttering was the most severe had post-treatment speech naturalness than the subjects whose pre-treatment stuttering was the least severe.
Onslow and Ingham (1987) reviewed various approaches that had been made towards the investigation of speech quality in stuttering treatment. The study takes into account the findings of relevant perceptual and acoustic investigations in the area of normal communication skills and voice disorders. Similar consideration is given to investigation on the stutter free speech of stutterers where the contribution and relevance of this research to the search for a reliable and viable measure of speech quality is discussed. The review concludes with an overview of some promising findings, from recent studies on the use of listener rating of speech naturalness in the measurement and modification of untreated and treated stutterers.

The purpose of Healey and Ramig (1989) study was to investigate the relationship between stuttering severity and treatment length to temporal length measures of stutterer's perceptually fluent speech. Seventeen adult stutterers were divided into two treatment categories. One group with limited exposure to treatment (N=7) consisted of stutterers who had completed ten hours of treatment. Another group with an extensive period of treatment (N=10) consisted of stutterers who had completed 47-212 hours of treatment. All stutterers were asked to repeat a simple phrase and read a prose passage. Spectrographic measures of the stutterers voice onset times, vowel, consonant and phrase duration were obtained from perceptibly fluent production of the isolated phrase and from a prose extracted from the oral reading. These results showed that there were no significant differences among stuttering severity groups or the two groups with different length of treatments. These results suggested that changes in the temporal measures of stutterer's fluency might occur through the process of treatment, but those changes are not related to stuttering severity or length of treatment.

Lacroix (1973) present case studies and treatment course for two male stutterers – one adult and one adolescent. The premise upon which their treatment programmes were based suggested that self recording of undesirable behaviour may tend to diminish the behaviours. Although the programmes were relatively short, they produced marked reduction in percentage of disfluency.
Prins and Nicholas (1974) conducted a residential and non-residential stuttering therapy on thirty two 11-15 year olds by using a questionnaire to evaluate the effects of the two programmes. Results showed impression of significantly greater improvement in speech fluency following residential therapy. Speech data support the questionnaire findings in terms of the magnitude of stuttering severity change in pre vs post therapy recording. Results are related to differences in the pre-therapy stuttering frequency of subjects and the nature of the two programmes. Subjects impression following the non-residential programmes were that its primary effects were related to improvement in morale. Possibilities for altering this programme to increase its effectiveness upon speech fluency are suggested.

Ingham and Packman (1978) noted that stuttering therapy procedures such as rhythmic or prolonged speech have been criticized because afterwards they may speak fluently but also abnormally. Although assessment of the normalcy of speech behaviour have been rare, some recent procedures have included perceptual assessments of certain dimensions of speech behaviour. The study reported an evaluation procedure where listeners endeavoured to distinguish between intermingled speech samples obtained from treated stutterers and a peer group of normally fluent speakers. Different groups of listeners were asked to judge the prosody rate, fluency and naturalness of post treatment samples from a group of nine 13-24 years old stutterers treated with a prolonged speech procedures and a matched peer group of normally fluent speakers. No significant differences were found between the assessment of stutterers and normally fluent speakers. However when another group of listeners were asked to decode whether the speech samples were from treated stutterers or normal speakers, the stutterers received significantly fewer normal speaker judgements. Inter relationships between judgement scales are evaluated along with a forced-choice procedure for assessing the normalcy of individual speech samples.

Andrews and Craig (1988) conducted a search for variables likely to predict individuals at risk of relapse in two groups of successfully treated stuttersers. The most powerful predictors were the attainment of three goals by the last day of treatment namely skill mastery as evidenced by no stuttering, normal attitudes to communication,
and an internalisation of the locus of control of the subjects who achieved these three goals. 97% maintained their improved speech in the long term. No subject who failed to achieve any of the three goals remained fluent, while those who achieved one or two goals had intermediate outcomes. No single goal was necessary and none alone was sufficient to maintain improvement. Both actual and long term outcome is to be satisfactory.

Onslow (1992) in his document explained that speech language pathologists providing early interventions services for stuttering are urged to evaluate conceptional and practical aspects of various intervention procedures. After a review of three treatment methods (environmental manipulation, prolonged speech, and response contingent stimulatus), the article concludes that response contingent stimulation is the most appropriate intervention for early stuttering.

Boberg and Kully (1994) tested seventeen adults and twenty five adolescent stutterers inorder to determine the long term effects of an intensive treatment programme for two or three times during twelve to twenty four month post intensive treatment phase. The results of this study were intended to augment and supplement the growing body of evidences about the effects of intensive treatment programme on adult and adolescent stutterers. Follow up measures included surprise phone calls to clients at homework and a self administered speech performance questionnaire. Careful training of speech raters was undertaken to ensure high reliability of speech measures. Results from the phone calls samples indicated that about 69% of the subjects maintained a satisfactory level of post treatment fluency, with an additional 7% maintaining a level that was judged to be marginally satisfactory on the self administered questionnaire. 80% of the subjects rated their speech fluency as good or fair twelve to twenty four months after treatment.

Stewart (1996) applied personal construct theory in the treatment of stammering in adults. Two stammerers (male, eighteen and thirty six years) in a group therapy programme of three phases were followed up at 1-2 years intervals. When results of the initial and final assessment were compared different levels of maintenance of fluency
were observed. It was hypothesized that the individual continuing of fluency during the programme and follow up phase affected the maintenance of fluent speech.

An exploration of the theoretical overview of stuttering and an initial evaluation of related studies of the personality variables of the stutterers as well as the review done on various management techniques have provided the investigator with a treasure of information. Based on the literature reviewed and the need felt by the investigator, the study was planned with certain objectives in mind.

**Objectives of the Study**

The main objective of the study was to develop a treatment programme and to test its efficacy on a group of stutterers in Kerala. The investigator also wishes to know the effectiveness of the package programme on the variable included under the study. The objectives of the study are summarized below.

1. To find out whether there are any significant differences among the three groups of stutterers for the variable State Anxiety, along different phases of treatment.

2. To find out whether there are any significant differences among the three groups of stutterers for the variable Trait Anxiety, along different phases of treatment.

3. To find out whether there are any significant differences among the three groups of stutterers for the variable Anxiety, along different phases of treatment.

4. To find out whether there are any significant differences among the three groups of stutterers for the variable Depression, along different phases of treatment.

5. To find out whether there are any significant differences among the three groups of stutterers for the variable Mania, along different phases of treatment.

6. To find out whether there are any significant difference among the three groups of
7. To find out whether there are any significant differences among the three groups of stutterers for the variable Paranoia, along different phases of treatment.

8. To find out whether there are any significant differences among the three groups of stutterers for the variable Total Maladjustment, along different phases of treatment.

9. To find out whether there are any significant differences among the three groups of stutterers for Intensity of Stuttering, along different phases of treatment.

Based on the objectives the following hypotheses have been formulated for the study.

**Hypotheses**

1. There will be no significant difference among the group undergoing the proposed package programme, the group undergoing conventional treatment and the group without any treatment in the variable State Anxiety, along different phases of treatment.

2. There will be no significant difference among the group undergoing the proposed package programme, the group undergoing conventional treatment and the group without any treatment in the variable Trait Anxiety, along different phases of treatment.

3. There will be no significant difference among the group undergoing the proposed package programme, the group undergoing conventional treatment and the group without any treatment in the variable Anxiety, along different phases of treatment.

4. There will be no significant difference among the group undergoing the proposed package programme, the group undergoing conventional treatment and the group without any treatment in the variable Depression, along different phases of treatment.
5. There will be no significant difference among the group undergoing the proposed package programme, the group undergoing conventional treatment and the group without any treatment in the variable Mania, along different phases of treatment.

6. There will be no significant difference among the group undergoing the proposed package programme, the group undergoing conventional treatment and the group without any treatment in the variable Inferiority, along different phases of treatment.

7. There will be no significant difference among the group undergoing the proposed package programme, the group undergoing conventional treatment and the group without any treatment in the variable Paranoia, along different phases of treatment.

8. There will be no significant difference among the group undergoing the proposed package programme, the group undergoing conventional treatment and the group without any treatment in the variable Total Maladjustment, along different phases of treatment.

9. There will be no significant difference among the group undergoing proposed package programme, the group undergoing conventional treatment and the group without any treatment for Intensity of Stuttering, along different phases of treatment.