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CLINICAL INVESTIGATIONS OF STUTTERING:  
II. TREATMENT AND FOLLOW-UP OF THE  
ADULT STUTTERER

by

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National Naval Medical Center  
Bethesda, Maryland

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Speech and Hearing Sciences  
Stanford University School of Medicine  
Palo Alto, California

January 1968

U.S. Army Medical Research  
and Development Command  
Project No. 3A 025601A826 01 036

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## SUMMARY

The aim of this phase of the study was to evaluate a program of therapy for stutterers, including a follow-up six months after therapy was terminated. An attempt was made to measure changes in selected personality factors as well as in attitudes toward speaking and in the audible and visible characteristics of stuttering, as a result of therapy. An attempt to find a reliable predictor of therapeutic outcome was unsuccessful.

The present study helps to establish that (1) statistically significant changes in both speech and personality variables may occur during relatively short-term, intensive speech therapy that includes a psychotherapeutic orientation; and (2) in general, these changes tend to persist over a period of at least six months following the end of therapy.

Two estimates of progress--therapists' ratings and psychometric measures--showed a moderate degree of agreement. When therapists' and clients' ratings were compared, the latter consistently tended to rate themselves higher than did the therapists.

## FOREWORD

The research reported here was carried out at the Audiology and Speech Center, Walter Reed General Hospital, Walter Reed Army Medical Center, under the sponsorship of the U.S. Army Medical Research and Development Command. This paper covers Phase II of a program of clinical investigations of stuttering, under DA Project No. 3A 025601A826 01 036. The authors wish to acknowledge the assistance of Patricia Turner Rosenman, former Supervisor of Speech Pathology at the Audiology and Speech Center, and Speech Pathologists Blanche M. Schnapper and Linda Tucker Boris, for their assistance, not only in providing ratings of the subjects' progress but in contributing substantially to every phase of the research program. However, the authors alone assume full responsibility for the content of this report.

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## CLINICAL INVESTIGATIONS OF STUTTERING:

### II. TREATMENT AND FOLLOW-UP OF THE ADULT STUTTERER

#### INTRODUCTION

This report is the second phase of a larger study of the adult stutterer. The first phase (Rosenthal and Naylor, 1968) investigated the status of the stutterer in the armed services, and attempted to make meaningful observations about his adjustment to and effectiveness in military life. The second phase, reported below, explored intensive short-term treatment and follow-up of the adult stutterer. A third phase will report on the use of videotape recordings in evaluation of treatment, and will present an informal evaluation of such visual recordings as a tool in therapy.

#### Description of the Problem

There have been relatively few published reports of follow-ups of individuals who took part in a program of therapy for their stuttering. There have likewise been few reports of attempts to evaluate, over a period of time, the effectiveness of a therapy program for stutterers. While the present study is only a tentative step toward these goals, it would seem of great importance that such efforts be made, and eventually improved to the point where we will know, much better than we now know, the effects of what we are doing in the speech clinic.

Unless we exercise unusual humility and caution in estimates of the stutterer's progress, we are often subject to a rude awakening. We find that our clients, perverse creatures that they are, have defied our best efforts and gone back to doing what they were doing when they came to us.

Individuals who stutter are notorious for such "relapses." They are equally notorious for what appears to be substantial improvement, often in the space of a few weeks or even days. Though we may prevent damage to our egos by failing to follow our clients once therapy is terminated, such follow-ups

need to be made, lest we acquire an impression of our therapeutic effectiveness that is considerably removed from reality. Confronting failure is painful, even shocking, but hardly anything is so effective in stimulating the search for improvement in methods of therapy.

The problem, put in broad terms, is that of obtaining a longer perspective on the impact that speech therapy has on the stutterer's subsequent behavior. It is not enough to know what happens in the speech clinic or in the laboratory; the results obtained there may not last. Effective study of the therapeutic process and its outcome must take sufficient account of the time dimension. Therapeutic results which the client does not maintain outside the clinic are a disappointment to the therapist and the client, and in the long run may do the latter more harm than good.

The aim of this phase of the study was to evaluate a rationale and general program of psychotherapeutically-oriented speech therapy rather than the work of individual therapists. It included a follow-up six months after termination of therapy. More specifically, an attempt was made to identify some of the personality characteristics, if any, associated with stuttering, and the degree and direction of change in personality dimensions and attitudes toward speaking, as well as in the audible and visible characteristics of stuttering itself, as a result of therapy. A related purpose was to discover tools for the prediction of therapeutic outcome which might be used in the selection or retention of patients. All of these objectives were intended to provide a basis for modification of therapeutic methods which might increase the incidence of successful outcome. To the extent that it was possible, individual differences in therapeutic approach were subordinated to an over-all rationale of direct attack on the stuttering and associated negative attitudes, with the emphasis on desensitization techniques and the gradual abandonment of avoidances.

### Etiology

The therapeutic rationale examined in this study is based in part on the premises that (1) secondary stuttering as we see it in the adult is primarily learned behavior, and (2) this behavior includes both stereotyped, rigid muscular patterns and

stereotyped, rigid patterns of attitude and emotional response to situations in which speech is required or expected. A further assumption is that these learned patterns become mutually self-sustaining in the secondary stage; that is, a vicious circle develops in which the muscular struggle increases fear, embarrassment and other negative responses, while these feelings in turn motivate a more desperate attempt, with increased muscular tension, to escape the moment of stuttering.

Regardless of what the original cause or causes may be (and we would agree with Van Riper (1963, pp. 314-327) that stuttering may have multiple origins), it is primarily with these sustaining causes that we must work when we try to help the adult stutterer. To be effective, therapy should be aimed at modifying both muscular and emotional patterns. To oversimplify, the stutterer must learn to stutter with less tension, and with less fear, until he can "stumble along calmly as normal speakers do" (Johnson, 1946, p. 352).

#### Description of Therapy Program

The Army Audiology and Speech Center, Walter Reed General Hospital, offers an eight-week program of intensive speech therapy for individuals who stutter. The brevity of the program is one of its distinctive features. The desirability of therapeutic techniques which may be effectively applied in a relatively brief time need not be stressed. Increased availability of therapy to those in need, reduction in the expense of therapy, and avoidance of some of the complicating problems of long-term therapy are but three of the positive aspects of such techniques. Although there were numerous attempts at less formal evaluation of the program during the eight years it had been in progress, the project outlined here was the first statistical investigation of its effectiveness.

In the present study each stutterer was assigned to the hospital as an in-patient for a period that averaged eight weeks. The program of therapy included individual sessions three times a week with the same therapist, and two group sessions, each with a different therapist, that met a total of six times a week. At times it was necessary to schedule only one group session meeting three times a week with a single therapist. Group therapists were rotated periodically. Once a week the entire

speech clinic staff reviewed with each client his therapeutic goals and activities of the previous week and discussed with him what was to come.

As indicated earlier the therapy program had two main goals: (1) to modify gradually the muscular patterns associated with stuttering, and (2) to modify associated negative emotional responses such as fear, guilt or embarrassment by deliberate effort to establish more objective and more positive feelings and attitudes through practice in a variety of social situations.

An attempt was made to achieve parallel measures of progress in the two goal areas; hence therapists' and clients' ratings of both speech and attitude were obtained. In addition, various psychometric measures were employed as a further estimate of attitudes and of other possible adjustment factors related to stuttering. These measures, too, could be considered as estimates of progress in therapy, though not always as clearly related to the therapeutic process as those elements described in the therapists' rating scales (see Appendix).

In the effort to modify the inappropriate and ineffective muscular patterns involved in stuttering, the subjects were encouraged, first, to become thoroughly acquainted with their usual patterns, through negative practice, use of the mirror and tape recorder, and deliberate prolongation and intensification of the moment of stuttering. Then they were encouraged to move gradually in the direction of normal disfluency, staying in contact with the "old pattern" throughout therapy but continually refining the pulling-out process in efficiency and duration. A part of the rationale for this approach may be found in Van Riper (1954), p. 426:

Transition, not substitution, is needed...the stutterer wrestles with his stuttering apparatus and makes it conform to the phonetic requirements of the word.

It is very essential that the stutterer do this psychic wrestling. He who has felt helplessly unable to control his speech organs will not feel that he has won any mastery over them unless he has fought for that mastery... Pull-outs provide

a favorable battlefield. The stutterer must modify the old reactions, rather than inhibit them and substitute new ones. The transitions should be gradual, not sudden; visible, not hidden. Our culture respects and rewards the person who fights for self-control, as the stutterer discovers to his great surprise.\* (Emphasis added.)

This direct confrontation with the muscular struggle involved in stuttering, this effort to modify gradually the usual muscular pattern, was repeated in the emotional sphere in the present study. A head-on struggle with negative emotional responses, a "pulling out" of fear, was a part of the "corrective emotional experience" (Backus and Beasley, 1951) the stutterer sought. Hence the importance of an emphasis on gradual rather than abrupt change.

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\*Van Riper, Charles, *SPEECH CORRECTION: Principles and Methods*, 3rd edition, 1954. Reprinted by permission of Prentice-Hall, Inc., Englewood Cliffs, N.J.

## REVIEW OF THE LITERATURE

In a review of research needs in speech pathology and audiology, Wischner and his committee (Brown, 1959) reported that "although the committee clearly recognizes the difficulties inherent in research designed to evaluate clinical techniques and programs for stutterers, it regards the need for such research as urgent," including "long-term follow-up of individuals exposed to different clinical programs and techniques."

Bradford (1962) made a survey of contemporary American literature in rehabilitation of the stutterer for the period from 1949 to 1959, as part of a larger investigation of theories of stuttering and their relation to therapy. She found some form of "mental hygiene" to be the most commonly advocated therapeutic approach. It was recommended by 102, or 84 per cent, of the 121 contemporary writers she surveyed. Forty-eight per cent recommended mental hygiene techniques as the only therapeutic method; thirty-six per cent recommended "mental hygiene and one or more symptomatic therapeutic measures as combined therapy..." Mental hygiene as used by Bradford included "'mental hygiene measures,' psychotherapy, and... psychoanalysis..." The next most commonly recommended method was relaxation, advocated by 19 of the 121 writers.

Bradford also reported that "although the majority of the contemporary writers on stuttering speech rehabilitation, who discussed the etiology of the disorder, viewed it as conditioned, learned, behavior, the majority of the contemporary writers employed no etiological concept of stuttering in their writings." The author felt this might be due to the continuing controversy about the cause or causes of stuttering. She advocated an integrated effort, by centers throughout the country, to make a long-term study of therapeutic techniques and follow-up of individuals who have been in therapy.

After a review of the literature beginning with the 19th century, Lander (1949) wrote, "...few available descriptions are to be found of the methods used in evaluating any changes occurring in the stutterer during therapy." He noted Kopp's (1939) observation that "there has been a striking absence of impartial follow-up studies to show definitely what percentage of the so-called cured stutterers retain their speech proficiency," and that we have failed "to evaluate the detrimental effects of some of the therapies that are now in use."

The need for caution in the interpretation of short-term changes and the desirability of follow-up was noted much earlier. Lander reports that Warren (1837) "stressed the inadvisability of turning the stutterer loose after a short period of therapy and thinking that his state of improvement would continue. He wrote, 'Though...cures appear perfect for the time, until they are confirmed by long habit, there is great danger of a relapse. In a few cases, they will remain permanent, but in a majority, unless the course is persisted in, the difficulty returns' " (Lander, 1949, pp. 13-14).

Williams (1955) concluded that "most of the published reports of therapy are relatively sketchy and theoretically unsystematic. A particularly significant characteristic of most of these reports is their lack of quantitative statements concerning therapeutic results."

One is left with the impression that the omission of follow-ups has been a common, if not the usual, practice. A striking exception has been the painstaking effort of Van Riper (Eisenson, 1958) to follow his clients for five years or more. Reporting on his group therapy with deliberately selected cases whose stuttering was severe and whose prognosis appeared unfavorable, he cited his criteria of successful therapy: "...the stutterer must be speaking better than this author in all situations...we might perhaps define this as 0.5 on the Iowa Scale of severity...the stutterer must not be avoiding words or speaking situations...his stuttering must not be interfering with his social or vocational adjustment...his situation and word fears must be pretty close to zero...his stuttering must present no concern to himself or others" (Eisenson, 1958, p. 390).

No attempt will be made here to summarize the rich and varied insights to be found in Van Riper's report on this phase of his work. Suffice it to say that this effort to fulfill the speech pathologist's full responsibilities by attempting an exacting and long-range evaluation of his own work in the clinic is without parallel in the literature on stuttering, so far as the present writers have been able to determine.

Rosenthal (1966), using many of the same subjects during their participation in the present study, employed a Q-technique to measure self-regard before and after the intensive, short-term

therapy described in the Introduction. While the mean group measure of self-regard did not change significantly, there were significant positive correlations between post-therapy self-regard and therapeutic success as determined from ratings by four experienced therapists. Change in self-regard appeared to be derived more from change in self-concept than from change in the ideal-self concept. Rosenthal concluded "that stuttering therapy can effect change in personality variables, and that these changes may be related to therapeutic success;" but he cautioned that "the goals of therapy must be carefully considered in light of the patient's objectives and his ability to adjust to the goals and expectancies of others," and that "much more investigation is necessary for a clear understanding of how the therapy process works and how various aspects of attitude and behavior are affected by this experience."

Lander (1949) sought to observe any changes that would appear in certain clinical measures administered before and after therapy and again six months after the stutterer left the clinic. He attempted "...measures in the area of speech itself, of personality, of attitudes and of evaluation of the difference called stuttering." These included changes in speech both within and outside the clinic, recorded and not recorded, with audiences that varied in size, employing propositional and question-answer types of speech, and oral reading.

Judgments of the stutterer's speech and of himself as a person who stuttered were made by clinicians, by the stutterer himself, and by his parents. Speech evaluations included estimates of "general characteristics such as 'severity of stuttering,' of specific behavioral phenomena associated with stuttering, and of ability to employ clinically-encouraged speech techniques." Rating scales, multiple-choice questions, the Knower Speech Attitude Scale and the Ammons-Johnson Test of Attitude Toward Stuttering were used. Measures of personality included the Minnesota Multiphasic Personality Inventory and the Bell Adjustment Inventory.

Lander's subjects ranged in age from 14 to 30 with a median of 17 and a mean of 18. Their Otis IQ range was from 70 to 129 with a mean of 105.7 and a median of 109. There were 32 subjects, 29 male, three female.

"'Speech' goals" included elimination of "tricks of avoidance, postponement, release or starting... establishment of new habits aimed at enabling you to do something about each block, preferably preparing to hit the word in a new learned way," attempting to control any "blocks" which occurred, and using cancellation for "failures." Other speech goals were: "The ability and willingness to stutter consciously (fake) in feared situations. Willingness to talk about one's stuttering, especially to verbalize failures."

"Physiological goals" involved "...improving your sidedness pattern, including...the talking-writing technique." "Personality goals" were described as: "Insight into and acceptance of your major liabilities and assets. Establishment of new patterns of response for situations likely to effect (sic) speech adequacy. Knowledge of fear and its relation to your stuttering; ability to use fear as a challenge and a signal to go to work on your speech... Increased ability to solve problems as they arise."

Reporting his results, Lander observed "change in the direction of improvement during therapy for: (a) clinicians' ratings of (1) severity of stuttering, (2) outstanding 'secondary' reactions, (3) general adjustment; (b) parents' ratings of severity of stuttering; (c) the social adjustment scale of the Bell Adjustment Inventory; (d) both the Knower Speech Attitude Scale and the Ammons-Johnson Test of Attitude Toward Stuttering.

"There was no difference in the home, health, emotional, and total adjustment scales of the Bell Inventory as measured before and after therapy...Differences in individual scales of the MMPI before and after therapy appeared less important than the striking similarity of mean profiles at the two times of measurement."

Lander found that the observed changes "in general...do not disappear in a six-month period after completion of work." Ratings at follow-up, however, showed "a trend in the direction of more severe stuttering and a 'return' of 'secondary' reactions." The author felt this latter finding was tentative since it was based on only his own evaluations of the subjects; it was not possible to have the subjects rated by the other clinicians at follow-up, so no statistical evaluation of the differences was performed.

Mean scores on the social adjustment scale of the Bell Inventory shifted from "retiring" before therapy to "average" at the end of therapy for this group of subjects. Health adjustment scale scores were "average" before and after therapy. The home adjustment scale mean shifted from "average" to "unsatisfactory," but the change was not statistically significant.

Lander failed to find statistically significant differences from the end of therapy to the time of follow-up six months later for these measures: oral reading time, percentage time stuttering, and scores on the Ammons and Knower attitude tests. "Number of spasms during the same period increased in variability to an extent precluding mean difference comparison;" median scores increased only slightly. "The investigator's rating of severity of stuttering and outstanding 'secondary' reactions, compared with four clinicians' combined post-therapy ratings, showed a slight reversal away from improvement in the six-month period following therapy..." As explained above, this difference was not submitted to statistical treatment.

Lander's study is reported at length because, of those reviewed, it is most nearly comparable to the present study. Comparison of results obtained in the two studies should take account of differences in procedure. Lander's therapy consisted of "five-week sessions." Five clinicians participated in the therapy and made evaluations before and after therapy. However, as the author points out, he alone made the follow-up ratings of control and severity of stuttering.

Although Lander began with 32 subjects and included these in before-and-after therapy analysis, only 18 of these returned for follow-up evaluation. In the present study, those who failed to return for follow-up evaluation were discarded from the before-and-after therapy analysis, in order that the results might be more clearly comparable throughout. (As mentioned elsewhere, only two of those in the present study who failed to return were known to have done so voluntarily; the rest either completed their tour of duty in the service or were sent overseas.) While Lander recognized the potential use of his findings for prediction of therapeutic outcome, he did not attempt this as a part of his study.

In accord with much current writing, Lander's study treated stuttering as at times involuntary. Speaking of his subjects' use of negative practice, he said, "...the undesired habit was repeated a set number of times voluntarily, after each time it occurred involuntarily." The present authors feel that the term involuntary is inappropriate when applied to stuttering, if by involuntary is meant "not under the control of the will." Stuttering is clearly not in the same category as the heart beat, the digestive processes, or other body functions we call involuntary.

Long habit may convince the stutterer that he has no choice, that he must stutter in the way that he does; but one can easily demonstrate that this is not true. Perhaps confusion arises because the stutterer apparently does not want to stutter (so, in this sense, his stuttering would seem involuntary or contrary to his will), and yet does so; but even this apparent contradiction disappears when we think of stuttering as the individual's choice of the lesser of two evils: he stutters as he does because he literally does not know how to be disfluent in a more nearly normal way, or, more likely, because to try to change is even more frightening than stuttering in his usual, stereotyped manner (Naylor, 1958, pp. 135-136).

A comparison of therapeutic techniques used by Lander and by participants in the present study suggests some evident similarities but a probability of more important differences. Both therapies aimed at reduction of avoidance behaviors. Lander speaks also of "establishment of new habits aimed at enabling you to do something about each block, preferably preparing to hit the word in a new learned way," attempting to control any "blocks" which occurred, and using cancellation for "failures." This seems rather a different emphasis than that of the present study, in which an attempt was made to keep the client continually in touch with his usual pattern of stuttering, as he gradually learned to modify it in the direction of normal disfluency.

Lander's work would seem to be an effort to evaluate stuttering not as a narrowly defined series of breaks in fluency, not as a relatively isolated personal experience, but as behavior inextricably imbedded in a social context. Such a

broader definition makes evaluation infinitely more difficult, but the attempt ought to be made. "Stuttering is not only a speech problem; it is a problem in social interaction" (Naylor, 1960).

Wischner (1950) proposed this analogy of the stutterer's problem:

For extinction of this [the stutterer's] avoidance behavior to occur, it would be necessary for the stutterer to manifest the original nonfluent pattern and find that it is no longer followed by punishment... Figuratively speaking, he must exhibit the original speech behavior and learn that 'the electric grill is no longer hot.'

This would seem to be a slightly unrealistic description of the situation. "Perhaps what the stutterer must learn is not that 'the electric grill is no longer hot,' but that even though it is hot he can learn to tolerate it, and even to cool it a little by his own efforts" (Naylor, 1955).

Cooper (1966) found that the personalities of stutterers and their clinicians were significant variables in therapy, and that there are similarities between therapy for stuttering and psychotherapy. His findings also suggested that there are definable stages in the therapeutic relationship as therapy progresses.

Hahn (1941) found a significant reduction in frequency of stuttering during oral reading with four variations in audience composition, when the stutterers were retested after a three-months period of therapy. The four variations were: the stutterer alone, with an unseen listener, with a visible listener, and with a group of five to ten people. "Emotional control" and "change of attitudes" were thought to be among the factors responsible for the reduction in frequency of stuttering; however, no objective measurement of such change was attempted. Hahn spoke of the need for evaluating speech in situations more like those encountered in real life situations.

Shames (1952) noted a similar limitation in his own study: "Speech adequacy was measured by quantifying the judgments of speech clinicians based on one listening of a small,

unrepresentative sample of recorded speech. The sample was very remote from everyday speech as it is encountered in the routine of the subject's environment, and the validity of this type of measure is questionable."

Shames studied 40 variables for their value in predicting success in speech therapy with 27 stutterers, two voice patients, and eight articulation cases of which four had cleft palates. The subjects included males and females, married and single, Negro and white, and ranged in age from 16 to 40. Nine of his variables were biographical factors taken from the case history; the rest were "obtained from pre-therapy rating scales, questionnaires and psychological tests," all dealing with various aspects of personality. Three of the biographical variables and eight of the personality variables were significant at the .10 level as predictors. However, Shames said that since it could be expected that 16 of his 160 chi squares might exceed the .10 level by chance alone, the results should be interpreted cautiously.

The 11 significant variables were related to improvement on at least one of these criteria of success: degree of alleviation of symptoms of speech inadequacy and social inadequacy as judged by clinical rating techniques and by the Guilford-Martin Inventory of Factors STDCR and the Rorschach technique. He failed to find any relationship with age or, in contrast with Lander's (1949) study and the present one, with the Bell Adjustment Inventory, including total score or any of the subscale scores.

As Shames indicated, the presence of different types of speech problems influenced the judging procedure, and the judges were not given definite criteria on which to base ratings of the adequacy of speech. Also, "all of the subjects were not exposed to the same therapeutic climate." Among other factors, individuals with different types of speech problems were included in the same group. The author added that "the rating scale measure of avoidance of social situations made use of unsystematic, global observations of the subject's behavior." He also questioned the validity of his other instruments for measuring social adequacy.

Lanyon (1965) employed three criteria of improvement: increase in rate of utterance, decrease in frequency of disfluencies, and decrease in judged severity over "one year's consecutive therapy." He found a percentage measure of adaptation positively related to improvement in therapy for stutterers whose initial severity was average or greater. However, he found "little or no evidence" for a relationship between improvement and either consistency of stuttering or the residual measure of adaptation. He felt that the percentage measure of adaptation offered promise as a predictor of improvement, but that reliabilities of measurement need first to be increased.

In a later study, Lanyon (1966), using change scores corrected for initial severity, found a significant correlation between improvement measured by these change scores and scores on the MMPI Ego Strength scale (positive correlation). He found age and intelligence not significantly related to improvement in therapy.

Sheehan (1954a, 1954b) tested the predictive value of Rorschach variables with adult stutterers treated by a team of therapists using a common theoretical framework. "The general findings...were that the Rorschach could be used to predict psychotherapeutic improvement in the group studied, but could not be used to predict speech or symptomatic improvement" (1954b). Scores on the Rorschach Prognostic Rating Scale "discriminated significantly between those who showed substantial or great improvement as against those who showed slight or no improvement, and between those who continued in therapy as against those who dropped.

"The total number of responses in the human movement, animal movement and inanimate movement categories appeared to discriminate equally well between these groups" (1954a). The number of movement responses and the prognostic scores were higher in the group with higher psychotherapeutic improvement ratings.

In intensive clinical case studies of four subjects, Williams (1955) employed the Iowa Scale of Attitude Toward Stuttering, the Stutterer's Situation Rating Sheet, and bi-weekly measures of adaptation and clinical ratings of severity

of stuttering. Two main types of therapy were employed: "counseling and direct modification of the stuttering behavior pattern." The counseling "was adapted to the individual's specific needs. The problems covered ranged from difficulties involving family relationships, heterosexual adjustments, feelings of self-devaluation, and other aspects of personality maladjustment, to certain problems specific to the stuttering itself and to particular speaking experiences."

All four subjects showed a change in a favorable direction in ratings of severity of stuttering on a seven-point scale, in mean scores on the Iowa Attitude Scale, and in mean ratings on the Situation Rating Sheet. For the latter, no quantitative scores were reported in the published abstract.

## PROCEDURE

The 30 male subjects who made up the experimental group in this phase of the study were those who completed the procedure out of 54 stutterers referred to the Audiology and Speech Center, Walter Reed General Hospital, during a period of 16 consecutive months. Four subjects were not included because their therapy varied from the normal program and schedule. Twenty were dropped when they failed to return for the reevaluation procedure six months after termination of therapy. Of this number, two voluntarily failed to meet their appointments; eight were discharged from the service after having completed their tour of duty; and ten were sent overseas. Since only two are known to have declined to return of their own accord (and at least one of those for personal reasons apart from his therapy), it seems justifiable to consider the sample as fairly representative of the outcome of this treatment program. However, since the experimenters had no control in selection of subjects for referral to the Center, the results should be interpreted with some caution, even with regard to all stutterers in the armed services.

Those who made up the final experimental group ranged in age from 18 to 35, with a mean of 24. Each subject arrived as he became available for therapy, departing after a period of approximately eight weeks; the program itself was continuous. One subject's therapy was ended after four weeks and another after five weeks when further progress seemed unlikely. Two individuals were kept for an additional two or three weeks. All of them, 29 enlisted men and one commissioned officer, were on active duty in the armed services.

Before starting therapy, each subject was administered the Wechsler Adult Intelligence Scale (Wechsler, 1955), the Revised Beta Examination (Kellogg and Morton, 1935), the Bell Adjustment Inventory (Bell, 1961), the IPAT Anxiety Scale (Cattell and Scheier, 1963), the MMPI Ego Strength Scale (Barron, 1953), and a Situation Rating Sheet derived from the Stutterer's Speech Situation Rating Sheet (Johnson *et al.*, 1963) developed at the University of Iowa. Immediately following therapy and again when the individual returned after six months for reevaluation, the Anxiety Scale, the Ego Strength Scale and the Situation Rating Sheet were administered. The Bell Inventory was repeated only at the time of reevaluation.

In the following text, the three sets of psychometric measurements are referred to under the headings Pretherapy, Post-therapy and Follow-up.

In addition, ratings of progress were made following therapy and at follow-up by four speech clinicians and a graduate student in speech pathology. Each subject also made similar ratings of himself. Two of the clinicians held the ASHA Advanced Certificate in Speech, one held the Basic Certificate and one the Provisional Basic Certificate. The graduate student, who held a bachelor's degree in clinical psychology, was working toward a master's degree in speech pathology. As part of his supervised clinical practice, he worked with three of the stutterers in individual therapy. The other clinicians participated in both the individual and group therapy.

The rating procedure provided for separate ratings, on a seven-point scale, of changes in the speech pattern, in attitude, and in the stutterer's apparent prospects for maintaining gains made or of making further progress (see Appendix). The latter scale, that is, was a direct effort at prediction of therapeutic outcome. Since the rating procedure was based on an ordinal rather than an interval scale, it was felt necessary to use non-parametric statistics in the analysis of data derived from this procedure. Except as noted, Spearman's rank correlation coefficient was used for the correlations reported below. The rank assigned to each subject was based on the median of therapists' ratings rather than the mean (Siegel, pp. 23-28; 202-213). For all psychometric measures used, a t-test for correlated pairs of means was employed to test for the significance of a difference between means (Guilford, pp. 27, 220).

As noted, the therapists in this study were rating their own clients. An attempt was made to limit personal bias by having three therapists work with each client (one in individual therapy and two in separate group therapy sessions), while there were always two therapists making ratings who saw the client each week at staffing sessions but did not work with him in therapy.

Some word of explanation is needed for the choice of one- or two-tailed tests of significance in the analysis. In every case where it seemed reasonable to predict an "improvement" in test scores--that is, a change in a direction toward what is indicated by the test as "healthy" or "desirable" behavior-- a one-tailed test of significance was employed. When there did not seem to be clearcut reasons to expect (1) a change of mean score in a given direction or (2) a correlation in one direction (either positive or negative) between test scores and therapists' ratings, a two-tailed test was employed.

For instance, with the Bell Adjustment Inventory it seemed reasonable to predict that the therapists' speech and attitude ratings at follow-up would be positively related to scores on the Inventory both before therapy and at follow-up, and with change in test score from one occasion to the other. That is, one could expect that the individual with a low (favorable) score on the Inventory both before therapy and at follow-up would tend to achieve a high (favorable) rating by the therapists for changes in speech and attitude. Hence a one-tailed test was applied.

On the other hand, since it appears that anxiety may serve either to motivate constructive behavior or to disrupt organized efforts in the individual's therapy, it did not seem justifiable to predict the outcome of IPAT mean scores or of their correlation with therapists' ratings; hence a two-tailed test was employed.

## RESULTS AND DISCUSSION

The data may be grouped under four headings: (1) reliability of the therapists' ratings; (2) progress in therapy as indicated by therapists' ratings and by improvement in mean scores on psychometric measures; (3) the value of psychometric measures in predicting success in therapy, with therapists' ratings as the criterion; and (4) age, intelligence and number of siblings as possible predictors of success in therapy.

### Reliability of Ratings

The reliability of therapists' ratings was estimated by obtaining the Kendall coefficient of concordance ( $W$ ) for the five raters (four speech pathologists and one graduate student in speech pathology). Coefficients obtained from post-therapy rankings were .76 (speech), .88 (attitude), .86 (prediction) and .86 (combined rankings). Coefficients from reevaluation rankings were .72 (speech), .80 (attitude), .79 (prediction) and .81 (combined rankings). Using chi square to test the significance of  $W$ , the obtained values were all significant beyond the .001 level.

Since it was possible on three occasions to obtain ratings from only three clinicians,  $W$  also was computed for combinations of three raters, using combined rankings. The obtained coefficients of .83, .83 and .75 were significant beyond the .05 level. It was felt this was sufficient reliability to warrant including these data in the statistical analysis.

Intercorrelations among the rankings derived from the various rating procedures are reported in Table 1. Since Attitude and Prediction correlated .97 and .98 in the post-therapy and reevaluation ratings, it was felt justified to drop the Prediction ratings from the correlations with psychometric measures, since the judges apparently were using about the same criteria for rating Attitude and Prediction.

Table 1. Intercorrelations among rankings derived from the various rating procedures.

S <sub>pt</sub>	-					
S <sub>f</sub>	.80	-				
A <sub>pt</sub>	.84	.68	-			
A <sub>f</sub>	.75	.84	.72	-		
P <sub>pt</sub>	.86	.65	.97	.67	-	
P <sub>f</sub>	.74	.87	.70	.98	.64	-
	S <sub>pt</sub>	S <sub>f</sub>	A <sub>pt</sub>	A <sub>f</sub>	P <sub>pt</sub>	P <sub>f</sub>

S<sub>pt</sub> - Speech post-therapy rating  
 S<sub>f</sub> - Speech follow-up rating  
 A<sub>pt</sub> - Attitude post-therapy rating  
 A<sub>f</sub> - Attitude follow-up rating  
 P<sub>pt</sub> - Prediction post-therapy rating  
 P<sub>f</sub> - Prediction follow-up rating

These intercorrelations suggest that the therapists may have tended to base their ratings of both speech and attitude on many of the same elements of behavior. But may they not just as readily indicate the strong link between external behavior, represented by the ratings of speech, and internal behavior as reflected in ratings of attitudes associated with the act of stuttering? The two sets of behaviors together make up at least a large part of the syndrome we call stuttering. Another portion, considered only indirectly in this study, is those internal and invisible physiological changes which at times occur when a person stutters, such as increased heart rate.

#### Progress in Therapy.

As explained earlier, the therapy was aimed at helping the stutterer improve his speech, and his attitudes toward self and others related to the act of speaking. Progress in these two areas was estimated from the therapists' ratings and from changes in mean score on the Situation Rating Sheet. The psychometric measures provided another kind of progress estimate, less clearly related to the therapy program but providing perhaps a better index of general adjustment. In this category were the Bell Adjustment Inventory, the IPAT Anxiety Scale, and the MMPI Ego Strength Scale. Again, changes in mean score provided an estimate of progress.

Therapists' ratings. Table 2 summarizes progress in therapy for this group of clients as indicated by the therapists' ratings at the end of therapy and at the time of follow-up six months later, in each of three areas: Speech, Attitude and Prediction. In Speech, six of the 30 subjects were judged to have made good to excellent progress (5.5 to 7.0) by the end of therapy, and an equal number, including four of the original six, received the same ratings six months later. Twenty-two were rated to have made moderate progress (2.5 to 5.4), and six months later, 18 were in this category. Two of the 30 were felt to have made very poor to poor progress (1.0 to 2.4) by the end of therapy; six months later this number had increased to six, or 20 per cent of the sample.

It will be noted that ratings for Attitude and Prediction rather closely parallel each other. In each category, two-thirds to four-fifths of the subjects achieved moderate to excellent ratings, with one-third to one-fifth in the very poor to poor category. It is apparent that the therapists tended to exercise considerable caution (or pessimism!) regarding their clients' outcome. At the end of therapy, fully 30 per cent were given a poor prognosis for maintaining the gains achieved; this figure varied little at the time of follow-up. The therapists' misgivings were borne out to a considerable extent: the proportion of those receiving a poor rating for their speech increased from seven per cent to 20 per cent; attitude ratings remained fairly stable. In the moderate category, there was a decided shift to lower ratings, especially in Speech.

These findings perhaps reflect a frequent clinical impression that changes in overt behavior lag behind or are more difficult to maintain than apparent changes in attitude. The flash of new insight, the new thinking stimulated by a fresh point of view, may come with comparative ease. But translating these insights--even though they be well established "intellectually"--into changes in one's behavior in daily contacts with other people is something else again. Changing one's mind is a private affair; changing one's overt behavior involves, among other things, the risk of unpredictable social consequences, especially when the stutterer leaves the protective atmosphere of the clinic. As Johnson (1946, pp. 183,206) so well put it:

Table 2. Number and percentages of subjects assigned to various progress categories, based on therapists' ratings immediately following therapy and at follow-up six months later. N = 30.

Descriptive category and range	Progress rating	Post-therapy			Follow-up		
		S	A	P	S	A	P
Good to excellent 5.5-7.0	6.5-7.0	1	1	2	1	4	4
	5.5-6.4	$\frac{5}{6}$ 20%	$\frac{10}{11}$ 37%	$\frac{6}{8}$ 27%	$\frac{5}{6}$ 20%	$\frac{4}{8}$ 27%	$\frac{2}{6}$ 20%
Moderate 2.5-5.4	4.5-5.4	8	7	10	2	4	5
	3.5-4.4	7	3	2	6	5	3
	2.5-3.4	$\frac{7}{22}$ 73%	$\frac{3}{13}$ 43%	$\frac{1}{13}$ 43%	$\frac{10}{18}$ 60%	$\frac{6}{15}$ 50%	$\frac{6}{14}$ 47%
Very poor to poor 1.0-2.4	1.5-2.4	1	4	5	4	5	7
	1.0-1.4	$\frac{1}{2}$ 7%	$\frac{2}{6}$ 20%	$\frac{4}{9}$ 30%	$\frac{2}{6}$ 20%	$\frac{2}{7}$ 23%	$\frac{3}{10}$ 33%

There is scant consolation in saying that you understand the principles of adjustment so long as your behavior shows that you are maladjusted... It is useless, sometimes to the point of disaster, to know something without knowing how to act as though you knew it.

Situation Rating Sheet. Changes in mean score on the four scales of the Situation Rating Sheet (see Appendix) are reported as part of Table 3. It will be noted that differences in mean score from pre-therapy to post-therapy and from pre-therapy to follow-up were significant for three of the four scales. Severity, Avoidance and Reaction, with (*p*) ranging from .05 to .005, respectively. That is, although these subjects apparently did not significantly increase the number of times they entered situations requiring speech (Frequency), they did report a reduction in severity of their stuttering. They also reported an increased enjoyment of speaking and a reduction in the urge to avoid situations requiring speech. These changes persisted six months after they had left therapy.

Changes in sample mean on the Situation Rating Sheet were in the anticipated direction in every case but one, that for post-therapy to follow-up on the Avoidance scale. However, in no instance was there a significant difference in mean score between the end of therapy and follow-up. The impression is that behavioral and attitudinal changes which accompany intensive therapy for stuttering may occur fairly soon, and on the average may be expected to persist at least for a period of six months, but progress may be halted or even reversed once therapy is terminated. This finding tends to support the evidence from the therapists' rating procedure that this group of stutterers either made minimal additional gains or even lost ground in the six months following therapy.

Part of the philosophy of therapy at the Center was that, from the day the stutterer entered, one of his major goals was to become his own therapist, to prepare himself to carry further the therapeutic work without the support of the clinic. The data above force the humble admission that, at least for this group of stutterers, this was not an easy goal to

Table 3 . Mean scores and correlation of scores on scales of the Situation Rating Sheet with therapists' follow-up ratings . N = 15 .

Avoidance Scale						
	Pre-therapy	Post-therapy	6 months' follow-up	Change pre-therapy to post-therapy	Change pre-therapy to follow-up	Change post-therapy to follow-up
Speech ratings	-.15	.14	.02	.06	.24	.02
Attitude ratings	-.17	.08	.02	.12	.19	.03
Mean	2.5	1.9	2.0	$\bar{t} = 2.66$ $p < .01$	$\bar{t} = 2.15$ $p < .025$	
$\bar{t}_{fs}$ ---two-tailed test						
Reaction Scale						
$\bar{t}_{M_d}$ ---one-tailed test						
Speech ratings	.03	.24	.23	.09	.20	.11
Attitude ratings	.00	.23	.06	.10	.09	.06
Mean	2.7	2.1	2.0	$\bar{t} = 3.77$ $p < .005$	$\bar{t} = 3.56$ $p < .005$	

Table 3 (Cont'd.)

Severity Scale						
	Pre-therapy	Post-therapy	6 months' follow-up	Change pre-therapy to post-therapy	Change pre-therapy to follow-up	Change post-therapy to follow-up
Speech ratings	.03	.09	.33 $p < .20$	.15	.20	.27
Attitude ratings	.09	-.22	.24	-.10	.15	.31
Mean	3.0	2.7	2.5	$t = 2.19$ $p < .025$	$t = 2.12$ $p < .05$	
$t_s$ two-tailed test						
$t_M$ one-tailed test						
Frequency Scale						
	Pre-therapy	Post-therapy	6 months' follow-up	Change pre-therapy to post-therapy	Change pre-therapy to follow-up	Change post-therapy to follow-up
Speech ratings	-.38 $p < .20$	-.10	.18	.36 $p < .20$	.52 $p < .05$	.50 $p < .10$
Attitude ratings	-.28	-.04	.33 $p < .20$	.26	.64 $p < .01$	.60 $p < .02$
Mean	3.7	3.5	3.4	$t = 1.41$ $p < .10$		

accomplish; to accomplish it in eight weeks of intensive therapy is perhaps too much to expect.

It should be noted that Frequency on the Situation Rating Sheet refers not to frequency of stuttering but to the frequency with which the stutterer encounters situations requiring speech. Of the four scales, this one alone failed to show a significant change in mean scores. Yet it was also the only one of the four scales in which the changes in score were significantly related to therapists' follow-up ratings. Using Spearman's rank correlation coefficient ( $\rho$ ), the correlation of Speech ratings with change from pre-therapy to follow-up was .52 ( $p < .05$ ), while that for Attitude ratings with change from pre-therapy to follow-up was .64 ( $p < .01$ ), and with change from post-therapy to follow-up was .60 ( $p < .02$ ). It appears that therapists' ratings for both Speech and Attitude were related to a considerable degree to this factor of the stutterer's reported willingness to enter situations requiring speech.

Possible trends may be noted in the correlation of other Frequency change scores with therapists' Speech ratings: with change from post-therapy to follow-up, .50 ( $p < .10$ ), and with change from pre- to post-therapy, .36 ( $p < .20$ ). Because of the smaller N for the Situation Rating Sheet than for the other measures, it seems worthwhile to mention the correlations which reached only  $p < .20$ . For the other scales of the Situation Rating Sheet, only one correlation showed a possible trend toward a significant relationship, that for therapists' Speech ratings and score on the Severity scale at time of follow-up (.33,  $p < .20$ ). The implication seems to be that the Situation Rating Sheet (except for the Frequency scale) and therapists' ratings at follow-up were tapping different dimensions of the stutterers' progress in therapy. The negative correlations of therapists' ratings and pre-therapy scores on the Frequency scale, one of which showed a possible trend (-.38,  $p < .20$ ), are discussed below in the section on predicting success in therapy.

Williams (1955), as noted in the Review of the Literature earlier, found a change in a favorable direction with his subjects in mean ratings on the Situation Rating Sheet. Comparison with results in the present study should, however, take

into account that for the latter a modified version of the Situation Rating Sheet was used (see Appendix).

Bell Adjustment Inventory. From the 160 items of the Bell Adjustment Inventory, a total score was derived and five subscale scores for Home, Health, Social, Emotional and Occupational adjustment. The results reported in Table 4 represent (1) rank-difference correlations of therapists' follow-up ratings with Bell scores before therapy and at follow-up, and with change in Bell score from pre-therapy to follow-up; and (2) results of t-tests for the significance of differences between mean Bell scores before therapy and at follow-up. Only those p's are included which reach or exceed the .10 level.

There was a notable absence of a statistically significant relationship between therapists' ratings and pre-therapy Bell scores, with only one significant correlation, at the .025 level, between Attitude ratings and score on the Occupational scale. (This finding is discussed below in the section on predicting success in therapy.) Only the suggestion of a trend is indicated with Health scale scores and both Speech and Attitude ratings. But at follow-up, significant correlations may be noted between therapists' Speech and Attitude ratings and total Bell score (p < .01 and .005, respectively). Significant correlations also occurred with scores on the Social, Emotional and Occupational scales and both Speech and Attitude ratings, as well as between Attitude rating and Health scale score; p ranged from .0005 to .05. Possible trends (p < .10) are shown in the relationship of Speech ratings and Home and Health scores. Although only two significant correlations with change in Bell score occurred (total Bell score and Social score vs. Attitude rating), several others approached significance.

As a measure of progress, this movement toward agreement between the stutterers' adjustment inventories and the therapists' ratings of their speech and attitude at follow-up is perhaps a significant finding. If valid, it points to some concordance between therapeutic progress in a therapy program for stuttering and over-all personal adjustment.

Table 4. Mean score and correlations of scores on the Bell Adjustment Inventory with therapists' follow-up ratings.  
N = 30; one-tailed test.

	TOTAL INVENTORY		
	Pre-therapy	Six months' follow-up	Change pre-therapy to follow-up
Speech ratings	.08	.43 $p < .01$ $\underline{t} = 2.52$	.26 $p < .10$ $\underline{t} = 1.42$
Attitude ratings	.21	.55 $p < .005$ $\underline{t} = 3.48$	.36 $p < .05$ $\underline{t} = 2.04$
Mean	44.9	37.4	$\underline{t} = 1.97$ $p < .05$
HOME			
Speech ratings	-.09	.27 $p < .10$ $\underline{t} = 1.48$	.30 $p < .10$ $\underline{t} = 1.66$
Attitude ratings	-.06	.18	.19
Mean	5.8	7.4	$\underline{t} = 1.51$ $p < .10^*$
HEALTH			
Speech ratings	.25 $p < .10$	.28 $p < .10$ $\underline{t} = 1.54$	.03
Attitude ratings	.25 $p < .10$	.38 $p < .05$ $\underline{t} = 2.17$	.15
Mean	4.9	4.2	
SOCIAL			
Speech ratings	.04	.40 $p < .025$ $\underline{t} = 2.31$	.23
Attitude ratings	.13	.58 $p < .0005$ $\underline{t} = 3.77$	.36 $p < .05$ $\underline{t} = 2.04$
Mean	15.0	9.0	$\underline{t} = 4.49$ $p < .0005$

\*See discussion of Home scale in text below.

Table 4 (Cont'd.)

	EMOTIONAL		
	Pre-therapy	Six months' follow-up	Change pre-therapy to follow-up
Speech ratings	.01	.35 $\underline{p} < .05$ $\underline{t} = 1.98$	.17
Attitude ratings	.26 $\underline{p} < .10$	.54 $\underline{p} < .005$ $\underline{t} = 3.40$	.26 $\underline{p} < .10$ $\underline{t} = 1.42$
Mean	9.4	6.4	$\underline{t} = 2.92$ $\underline{p} < .005$
OCCUPATIONAL			
Speech ratings	.24	.51 $\underline{p} < .005$ $\underline{t} = 3.14$	.26 $\underline{p} < .10$ $\underline{t} = 1.42$
Attitude ratings	.39 $\underline{p} < .025$	.60 $\underline{p} < .005$ $\underline{t} = 3.48$	.28 $\underline{p} < .10$ $\underline{t} = 1.64$
Mean	9.7	10.3	

In addition, significant changes in mean scores on the Bell Inventory were found for the total scale ( $\underline{p} < .05$ ), for the Social scale ( $\underline{p} < .0005$ ), and for the Emotional scale ( $\underline{p} < .005$ ). In all cases of significant change, the movement was in the anticipated direction, a reduction in score presumably indicating improved adjustment. Two of the scales, the Home and Occupational scales, showed increases in mean score from pre-therapy to follow-up, though neither was statistically significant. This rather surprising reversal from the anticipated direction of change casts doubt on the choice of a one-tailed test for the Bell Inventory scales. The Home scale, which showed the greatest mean increase, would have yielded a value of  $\underline{p} < .20$  if a two-tailed test had been employed. If the scores

for the Home and Occupational scales represent a real trend, one can surmise that the stutterer, while playing a more active, less conforming role with regard to his stuttering, may at times be moving in a similar direction in other areas of his life, perhaps generating, at least temporarily, increased friction in interpersonal relationships as he tries out new modes of behavior. This area may be a fruitful one for further study.

If the statistical relationships noted represent a true picture, they would seem to lend support to those who have felt that stuttering and personality and/or interpersonal processes are closely related. Perhaps one can say, at least for some persons who stutter, "Successful treatment requires not only a step toward free speech; it requires a step toward maturity" (Naylor, 1960).

IPAT Anxiety Scale. When scores on the IPAT Anxiety Scale (Cattell and Scheier, 1963) were tested, statistically significant mean differences were found from pre-therapy to post-therapy and from post-therapy to follow-up, but not from pre-therapy to follow-up (Table 5). Inspection of these differences indicates a rise in the free anxiety level at the conclusion of therapy, perhaps a not unexpected result as the client contemplated leaving the shelter of the clinic and returning to active duty in the military service where he would be on his own again in handling his stuttering. After six months had elapsed, the anxiety level appeared to have dropped slightly below its value before therapy was started, but not far enough for the difference to be statistically significant ( $p < .20$ ).

The therapy employed thus cannot be claimed to have effected any significant reduction in the clients' free anxiety level as measured by the IPAT. On the other hand, it may be hypothesized that the therapeutic process mobilized more anxiety in these subjects during therapy, perhaps in a manner that served to motivate a more active attack on the stuttering. To put it another way, perhaps these clients' decisions to abandon the protection of their avoidances and take the bull by the horns, so to speak, induced increased anxiety. If their initial scores may be taken as a kind of anxiety baseline, their return to this level while maintaining gains in

Table 5. Mean scores and correlations of scores on the IPAT Anxiety Scale with therapists' follow-up ratings. N = 27. Two-tailed test.

IPAT TOTAL SCORE						
	Pre-therapy	Post-therapy	6 months' follow-up	Change pre-therapy to post-therapy	Change pre-therapy to follow-up	Change post-therapy to follow-up
Speech ratings	-.03	.11	.32 p < .20	.25	.30 p < .20	.19
Attitude ratings	.15	.31 p < .20	.48 p < .02	.29 p < .20	.28 p < .20	.14
Mean	28.9	32.8	27.4	t = 2.22 p < .05		t = 3.71 p < .001
IPAT OVERT-COVERT RATIO						
Speech ratings	.06	.01	-.10	-.14	-.15	-.09
Attitude ratings	.11	.16	.01	-.05	-.16	-.18
Mean	.86	.95	.78			t = 2.07 p < .05

reduced avoidance behavior, in reduced severity of stuttering, and in improved reaction to speaking situations, at least suggests that some reorganization and reintegration have taken place.

A significant correlation was obtained for the total IPAT score at the time of follow-up and the therapists' Attitude ratings. Again, although the IPAT did not prove to be a useful predictor at the beginning of therapy, it did appear to be sensitive to changes in the stutterers' feelings as therapy progressed. Perhaps one evidence of this is the increasing correlations with therapists' ratings both for speech and attitude, from before therapy to after therapy to follow-up. However, none of these other correlations with total IPAT score reached even the .10 level of significance, although, as indicated in the table, several of them approached it.

Only one significant correlation resulted from computation of the Overt-Covert ratios of the IPAT Anxiety Scale. Change in mean O-C ratio from post-therapy to follow-up was significant at the .05 level of confidence. It will be noted that the mean ratio increased slightly from pre- to post-therapy, then dropped at follow-up below its original pre-therapy level. As the authors describe the Overt-Covert ratio, it "is intended to indicate the degree to which the patient is or is not conscious of his anxiety, perhaps also of his wish consciously to emphasize it" (Cattell and Scheier, 1963), although "generally...the Scale centers primarily on free conscious anxiety rather than unconscious or bound." A reduction in the ratio, then, may be taken to mean a relative increase in covert anxiety as compared to overt or manifest anxiety.

In Table 6, results from the Overt and Covert subscales are reported separately. With this further analysis it will be noted that, for the Overt subscale, the differences in mean score from pre-therapy to post-therapy and from post-therapy to follow-up were significant ( $p < .05$  and  $p < .01$ , respectively). Although the mean Overt score at follow-up fell below the mean pre-therapy score, the difference was not significant ( $p < .20$ ). None of the changes in mean score for the Covert subscale reached the level of significance,

Table 6. Mean scores and correlations of scores on the Overt and Covert subscales of the IPAT Anxiety Scale with therapists' follow-up ratings.  
 N = 27. Two-tailed test.

IPAT OVERT SCALE						
	Pre-therapy	Post-therapy	6 months' follow-up	Change pre- to post-therapy	Change pre-therapy to follow-up	Change post-therapy to follow-up
Speech ratings	-.02	.14	.29	.16	.31 p < .20	.22
Attitude ratings	.14	.24	.41 p < .05	.12	.31 p < .20	.32 p < .20
Mean	13.59	15.59	12.37	t = 2.15 p < .05		t = 3.68 p < .01
IPAT COVERT SCALE						
Speech ratings	-.01	.12	.33 p < .10	.24	.14	.13
Attitude ratings	.16	.37 p < .10	.48 p < .02	.33 p < .10	.22	.07
Mean	15.37	17.22	15.07	t = 1.66 p < .20		t = 2.00 p < .10

although the drop in mean score from post-therapy to follow-up approached significance ( $p < .10$ ), using a two-tailed test.

The test authors caution that "...the total anxiety score is by far the most important one and will in almost all cases be the only one depended upon. The other score breakdowns are too brief or experimental to be used as anything more than suggestive indications" (Cattell and Scheler, 1963). With this qualification in mind, the results would seem to suggest that changes in anxiety which occurred in these subjects tended to be at the overt, conscious level rather than in covert or unrealized form. This would seem consistent with the purposes of the therapy, which was aimed at a very direct and deliberate attempt to achieve changes in attitudes and in overt social behavior.

Pre-therapy scores on both the Overt and Covert subscales also failed to predict therapeutic outcome as indicated by therapists' Speech and Attitude ratings. Attitude follow-up ratings correlated significantly, however, with both Overt and Covert subscale scores ( $p < .05$  and  $p < .02$ , respectively). Three other correlations with Covert subscale scores approached significance ( $p < .10$ ): Attitude rating with post-therapy Covert score and with change in Covert score from pre- to post-therapy, and Speech rating with Covert follow-up score. Taken together, these findings suggest (but without statistical confirmation) that the IPAT Anxiety Scale is more sensitive to changes in the stutterer's feelings about himself than to changes in his pattern of stuttering.

MMPI Ego Strength Scale. Results from use of the MMPI Ego Strength Scale (Barron, 1953) are reported in Table 7. The negative correlation between scores on this scale and pre-therapy Speech ratings cannot be given much weight ( $p < .20$ ), but perhaps deserves comment. It seems reasonable to expect that the stutterer with the strongest ego may tend to receive the lowest rating of his speech because he feels least defensive, is more willing to display his struggle during the act of speaking; conversely, the weak-ego stutterer feels he cannot afford this display. So he makes a great effort to cover up, and has probably developed greater facility in concealment of the struggle. This explanation would seem to accord with Douglass and Quarrington's (1952) differentiation of the

Table 7. Mean scores and correlations of scores on the MMPI Ego Strength Scale with therapists' follow-up ratings. N = 30.

MMPI EGO STRENGTH SCALE						
	Pre-therapy	Post-therapy	6 months' follow-up	Change pre-therapy to post-therapy	Change pre-therapy to follow-up	Change post-therapy to follow-up
Speech ratings	-.29 p < .20	.10	.02*	.44 p < .01	.42* p < .01	.14*
Attitude ratings	-.10	.29 p < .20	.31* p < .20	.40 p < .01	.56* p < .005	.27* p < .10
Mean	47.10	47.37	48.90			t = 1.34* p < .10

\*N = 29

Pre-therapy, post-therapy and follow-up ratings--two-tailed test

Change ratings--one-tailed test

interiorized and exteriorized stutterer (although these two probably should be thought of as lying at opposite ends of a continuum rather than as representing separate categories). As these authors put it:

The interiorized stutterer's main concern is to avoid stuttering and he will sacrifice expression or any other sub-goal for achievement of his main goal if necessary. . . . In the interiorized stutterer one usually finds that his "control" over stuttering appeared with the suspension of vocalization before a stuttering moment. . . . [he] goes on to develop still further devices which help him avoid stuttering in an appropriate fashion from situation to situation. The personal cost of complete avoidance is great but the interiorized stutterer can acquire the semblance of fluency.

It would appear, then, that the low-ego stutterer may develop more socially acceptable avoidant patterns, with a minimum of obvious struggle behavior, sufficient to give him a somewhat better rating even by the trained speech pathologist.

Again as Quarrington and Douglass (1960) have suggested, perhaps the interiorized stutterer has further to travel in the therapeutic process. First he must learn to accept his stuttering at least to the point where he is willing to do it more openly (something the exteriorized stutterer does routinely) in order to be able to attack it directly and improve it still further.

Correlations between therapists' follow-up Attitude ratings and scores on the Ego Strength Scale likewise did not reach significance. However, with both Speech and Attitude ratings a change between pre-therapy and follow-up in the direction of a more positive relationship may be noted, although for Speech ratings the trend was reversed slightly between post-therapy and follow-up. Lanyon (1966), it will be recalled (see Review of the Literature), found a significant positive relationship between MMES scale scores and improvement in therapy.

There was a significant correlation ( $p < .01$ ) between therapists' follow-up Speech and Attitude ratings and change in score on the Ego Strength Scale, both from pre-therapy to post-therapy and from pre-therapy to follow-up. That is, those subjects who showed the most improvement in ego strength during therapy as measured by this scale tended to receive the highest Speech and Attitude ratings at follow-up. This was true although the over-all mean score on the Ego Strength Scale did not change significantly, suggesting that while gains were achieved by some subjects, others lost an equivalent amount. Examination of the data reveals that this is actually what occurred, emphasizing again that the problem we call stuttering is not the same problem in different individuals. More work like that of Douglass and Quarrington is needed to differentiate types or variations of behavior in persons who stutter.

In another paper discussing data drawn from some of the same subjects as the present study, Rosenthal (1966) reported that while some stutterers showed increases in self-regard, some actually showed reduced self-regard during therapy. Citing Zelen's finding that "stutterers may show unusually high self-regard as a defensive or compensatory reaction," Rosenthal continued: "If this is so then a decrease in self-regard may be an indication of a more realistic assessment of the self in these individuals." However, in his study only a few such individuals were rated as therapeutic successes; most of those individuals who decreased in self-regard were also ranked lower in therapeutic success. Rosenthal suggested two possible explanations: (1) that "progress in those individuals who begin with low self-regard, and perhaps considerably depressed, is more readily observed by therapists;" or (2) "that many patients are either unable to accept the necessarily limited goals of brief therapy or else feel that they have not attained them."

As in other forms of therapy, more understanding is needed of what occurs during the therapeutic process. One may surmise that while client-therapist interaction may have an important effect on other psychological variables considered in the present study, its effect on ego strength may be a critical one. Why does one subject come out of therapy "stronger" than he was at the beginning, while

another is "weaker" in the area of ego strength, while some remain relatively unchanged, when all have supposedly been exposed to a similar therapeutic milieu? The answer probably lies not only in significant differences in stutterers themselves, but also in differences in client-therapist interaction that are being overlooked or unjustifiably disregarded. One may also speculate at what further changes might have been accomplished had it been possible to continue therapy with these subjects over a longer period of time than eight weeks.

Comparison of therapists' and subjects' ratings. Table 8 shows the intercorrelation of therapists' and subjects' ratings for both Speech and Attitude. The correlations were all significant, with  $p$  varying from  $< .0005$  to  $< .05$ , except for therapists' post-therapy and subjects' follow-up Attitude ratings. For both Speech and Attitude, it will be noted, the correlation was highest for ratings made at the termination of therapy. The correlation fell off between that time and the time of follow-up six months later. The subjects' own post-therapy ratings for both Speech and Attitude showed only a moderate degree of relationship with their follow-up ratings (.44 and .49, respectively), while correlation of the therapists' post-therapy and follow-up ratings showed more consistency (.80 for Speech and .72 for Attitude).

As explained earlier, therapists and subjects made ratings of Speech, Attitude and Prediction at the end of therapy and again at the time of follow-up. To test for the significance of differences between subjects' and therapists' ratings, the Wilcoxon matched-pairs signed-ranks test was used. Using a one-tailed test, significant differences were found for all comparisons as follows:

Speech post-therapy ratings ( $p < .0001$ )  
Speech follow-up ratings ( $p < .0005$ )

Attitude post-therapy ratings ( $p < .0001$ )  
Attitude follow-up ratings ( $p < .0005$ )

Prediction post-therapy ratings ( $p < .0001$ )  
Prediction follow-up ratings ( $p < .0001$ ).

Table 8. Intercorrelation of therapists' and subjects' ratings. One-tailed test.

	SPEECH		
	Therapists' post-therapy ratings	Therapists' follow-up ratings	Subjects' follow-up ratings
Subjects' post-therapy ratings	.63 $p < .0005$	.45 $p < .01$	.44 $p < .01$
Subjects' follow-up ratings	.32 $p < .05$	.46 $p < .01$	
Therapists' follow-up ratings	.80 $p < .0005$		
	ATTITUDE		
Subjects' post-therapy ratings	.58 $p < .0005$	.42 $p < .05$	.49 $p < .005$
Subjects' follow-up ratings	.24	.41 $p < .05$	
Therapists' follow-up ratings	.72 $p < .0005$		

For each comparison the subjects tended to rate themselves higher than the therapists did. As a representative example, when Speech was rated at the time of follow-up, eight subjects gave themselves ratings below the median therapists' rating; differences ranged from 0.2 to 1.0 with a mean of 0.5. Three subjects showed no difference; and 19 rated themselves from 0.2 to 4.8 points higher, with a mean of 1.9. All ratings were made on a seven-point scale. Using the therapists' ratings as a criterion, the subjects tended to see themselves through somewhat rose-colored glasses.

#### Predicting Success in Therapy.

Psychometric measures. The results in this area were almost uniformly negative. None of the psychometric measures taken before therapy--the Bell Adjustment Inventory, Situation Rating Sheet, IPAT Anxiety Scale or MMPI Ego Strength Scale--showed a statistically significant relationship with therapists' ratings of Speech and Attitude at the time of follow-up, except for the Occupational scale of the Bell Inventory, which was significantly related to Attitude rating ( $p < .05$ ).

One is tempted to dismiss the latter as probably a chance finding. But a possible implication is that the individual who feels least able to manage his stuttering successfully feels least able to achieve a satisfactory adjustment on the job. It would seem reasonable to postulate from this that difficulties in interpersonal relationships may be a common cause in both instances. Why should such difficulties be more apparent on the Occupational scale than on, say, the Social scale? Perhaps because the individual has less opportunity on the job to associate with people of his own choosing than he would on the average in social life; also, the requirements of getting the job done might reasonably be expected to generate frictions or interpersonal conflicts, especially in a setting where group effort and close daily personal contacts are inevitable, while in social intercourse such conflicts might more readily be side-stepped. It remains to be seen whether findings in a non-military setting would be similar.

When the subjects were ranked according to their Attitude ratings at follow-up and grouped into thirds, those in the lower third of the rank order marked 132 scorable items on the

Occupational scale, while those in the upper third marked only 59 scorable items. The contrast was even more marked when the lower sixth (73 scorable items) was matched against the upper sixth (27 scorable items). Items such as the following appeared to discriminate best between those with low and high ratings on Attitude; subjects who received low ratings tended to mark them as indicated:

Have you frequently changed jobs during the last five years? (Yes)

Is your present job very monotonous? (Yes)

Do you feel that your work is supervised by too many different bosses? (Yes)

Do you get discouraged in your present work? (Yes)

Do you find that you have very little real interest in your present job? (Yes)

Have you been able to get the promotions you desire in your present job? (No)

As noted, no other psychometric measure showed any predictive value. Correlations of the Health scale and the Emotional scale of the Bell Inventory approached significance in this respect, the former with both Speech and Attitude ratings, the latter with Attitude ratings alone ( $p < .10$  in each instance). Two negative correlations occurred between therapists' ratings and pre-therapy scores on the Frequency scale of the Situation Rating Sheet. Only one of these, that for Speech ratings, approached significance (as stated earlier, it was thought worthwhile to mention correlations where  $p < .20$  for the Situation Rating Sheet, since  $N$  here was only 15). If these negative correlations represent a true relationship, they suggest that the subject who tends most to restrict or limit his speaking experience before therapy (that is, the most interiorized or introversive subject) gains most from therapy of the type offered in this program. Also, the change, when it occurs, is most dramatic, so that therapist-judges are not likely to miss it. On the other hand, those subjects who are

more outgoing at the end of therapy but started with a higher baseline are less noticeable and may be given less credit for their accomplishment. Replication would be required to confirm this suggestive finding.

In summary, these scattered findings would seem to have little value as predictive measures of the outcome of therapy for persons who stutter. It should be remembered that only one set of therapists' ratings was used for the intercorrelations--those made at the time of the six-months' follow-up--since it was felt this would offer the most stable and comprehensive evaluation of the subjects' progress. Therefore, any change in the correlations of test scores and therapists' ratings from pre-therapy to post-therapy to follow-up represents a change in the subjects' estimate of themselves as therapy progressed and during the post-therapy period.

Age, intelligence and number of siblings. The findings regarding age, intelligence and number of siblings of the experimental subjects are reported in Tables 9 to 11. The subjects ranged in age from 18 to 35, with a mean of 24. The total number of siblings ranged from none to 12, with a mean of 3.6 (2.1 males, 1.5 females).

Table 9. Correlations of subjects' ages at last birthday with therapists' follow-up ratings. N = 30.

	AGE (Years)
Speech ratings	.18
Attitude ratings	.08
Mean	24

The mean intelligence quotient on the Revised Beta Examination was 105.5, with a range of 87 to 120; on the Wechsler Adult Intelligence Scale, the mean Full Scale IQ score was 103.8, with a range of 86 to 120. The mean Verbal IQ score on the WAIS was 106, with a range of 88 to 122; the mean Performance IQ score was 100.3, with a range of 76 to 122.

Table 10. Correlations of subjects' IQ scores on the Revised Beta Examination and the Wechsler Adult Intelligence Scale with therapists' follow-up ratings. N = 30.

	IQ SCORE			
	Revised Beta	WAIS Full Scale	WAIS Verbal	WAIS Performance
Speech ratings	.11	.07	.03	.03
Attitude ratings	.16	.20	.18	.15
Mean	105.5	103.8	106.0	100.3

None of the correlations of therapists' Speech and Attitude ratings with age, intelligence and number of siblings was significant at the .05 level. Thus these factors also failed as predictors of therapeutic outcome. Lanyon (1966), too, found age and intelligence not significantly related to improvement in therapy.

Table 11. Correlations of number of male and female siblings with therapists' follow-up ratings. N = 30.

	NUMBER OF SIBLINGS		
	Male siblings	Female siblings	Total siblings
Speech ratings	.04	.05	.14
Attitude ratings	.02	.21	.23
Mean	2.1	1.5	3.6

## SUMMARY AND CONCLUSIONS

### Summary

As explained in the Introduction, the aim of this phase of the study was to evaluate a program of therapy for stutterers, including a follow-up six months after therapy was terminated. An attempt was made to measure changes in selected personality factors as well as in attitudes toward speaking and in the audible and visible characteristics of stuttering, as a result of therapy. A search also was made for factors which might predict success in therapy.

The present study helps to establish--along with others, particularly Lander's (1949) research--that (1) statistically significant changes in both speech and personality variables may occur during relatively short-term, intensive speech therapy that includes a psychotherapeutic orientation; and (2) in general, these changes tend to persist over a period of at least six months following the end of therapy.

In summary, the therapists' ratings of Speech and Attitude, made six months after therapy was terminated when the subjects returned for a follow-up, provided one tangible estimate of moderate success in therapy for this group of stutterers. Another estimate was provided by psychometric measures. Statistically significant favorable changes occurred in mean total score on the Bell Adjustment Inventory, as well as in mean score on two of its five subscales, on three of four subscales of the Situation Rating Sheet, and on the IPAT Anxiety Scale, especially the Overt subscale, and in one instance on the Overt-Covert ratio. No significant changes in mean score were found with the MMPI Ego Strength Scale.

When the two methods of estimating progress--therapists' ratings and psychometric measures--were correlated with each other, a moderate degree of agreement was noted, primarily with the total Bell Inventory score and its Social, Emotional and Occupational subscales, with the Frequency scale of the Situation Rating Sheet, and with change scores on the MMPI Ego Strength Scale. Comparison of therapists' and subjects' ratings showed that the latter consistently tended to rate themselves higher than did the therapists. The attempt to find a reliable predictor of therapeutic outcome was unsuccessful.

## Conclusions

To attempt to study the therapeutic process is to be reminded again of its complexities and difficulties. One need not look far to find weaknesses in the present study; among them, (1) the lack of random sampling in selection of the experimental subjects, (2) the lack of a control or "wait" group in the manner of the Rogers-Dymond series of studies, (1954) (3) the dubious assumption that the subjects were all exposed to a relatively consistent therapeutic milieu, and (4) the failure to identify factors in the therapy program, and/or in the subjects themselves, responsible for conflicting changes in different members of the client population--for example, as noted on the MMPI Ego Strength Scale, according to which some stutterers increased in ego strength during therapy while others declined on the same measure.

Random sampling and the use of a "wait" group proved not to be feasible in a clinical setting where referrals were received from various parts of the United States and even from military establishments in foreign countries. Although a continuing effort was made to maintain therapeutic consistency, the success of this effort was limited not only by the different therapists' varying interpretations of the therapeutic rationale, and by the unique needs of each client, but also by the continuous nature of the program, with clients overlapping each other by various intervals rather than starting and ending therapy at the same time. This rather awkward system did have its advantages. The newly-arrived client seemed to benefit from contacts with those who had already been in the program for a few weeks. In groups that started off together, as part of a later phase of the study, there appeared to be more initial anxiety and defensiveness.

The lack of a control group perhaps precludes the conclusion that the observed changes were the result of therapy. However, one can argue on a kind of common sense basis that stuttering is ordinarily, in a given set of circumstances, a tenacious kind of behavior which does not usually show marked, lasting, spontaneous improvement within a period of a few weeks or a few months. Of course there are exceptions to this statement, as there are to most generalizations about stuttering. But in general it seems to hold true,

on the basis of long-term observation. Stutterers begin to stutter, usually, in early childhood; and not only do they continue to do so as adults, they tend, after reaching the secondary stage, to do so in a stereotyped manner, using roughly the same laborious and conflicted muscular mechanisms year after year.

Some support for this comment is to be found in the present study, in which (to the chagrin of the therapists!) relatively little change for the better was observed between the end of therapy and the time of follow-up six months later; there was in fact an apparent trend among the subjects to lose some ground previously gained. To turn the self-defeating vicious circle of stuttering into a self-helping benign circle of disfluency increasingly near the normal is not an easy achievement; but this will come as no surprise to anyone who has attempted it.

In spite of the limitations of this research, one conclusion to be drawn is that a long-range study of therapy for the stutterer, and of its outcome, is both practicable and valuable. The authors are convinced that only in such a context can an evaluation of the speech pathologist's contribution to the well-being of the stutterer have any real significance. Too often, at present, we make our judgments from too small a segment of behavior over too short a period of time; if we do this defensively, to protect our own egos, then we do it at the expense of our clients. In the speech clinic, as in life, perspective is vital.

It is to be hoped that future research not only will be devoted to comparison of different types and durations of therapy, and of the styles of different therapists, but will also attempt to identify variables which significantly differentiate one stutterer from another in their responses to therapy. Finally, it is to be hoped that more speech pathologists will accept the responsibility of long-range follow-up as a routine part of their therapeutic activity.

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## APPENDIX

### Rating Scale for Therapists

#### STUTTERING: CRITERIA OF IMPROVEMENT

##### Speech

7--Shows a minimum of tension or forcing in the speech mechanism or of general tension during speech; maximum reduction in number and frequency of secondary manifestations; maximum reduction of avoidances in the speech pattern; maximum reduction in frequency and severity of stuttering.

4--Shows a moderate amount of the above characteristics, or shows them inconsistently to a moderate degree.

1--Shows no apparent change in overt stuttering pattern; no apparent reduction of tension; apparent persistence of a maximum of tension in the speech mechanism and/or over the whole body during speech; no apparent change in secondary manifestations; apparent persistence of a maximum of avoidances.

##### Attitude

7--Shows a maximum degree of positive features, verbalizing and demonstrating insight into his stuttering, initiative, objectivity, acceptance of the role of stutterer, etc., with a minimum of avoidances in the speech pattern and in related social behavior.

4--Shows a moderate amount of the characteristics noted above, or shows them inconsistently.

1--Shows no apparent insight into his stuttering; complete refusal to accept responsibility for it; complete lack of initiative in dealing with it; complete lack of objectivity regarding it; no reduction of avoidances in the speech pattern or related social behavior.

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Prediction\*

7--Apparently excellent chances for maintaining gains made and of making continued progress.

4--Fair prospect of further improvement, but with definite negative indications.

1--No apparent prospect of further improvement or of maintaining gains he has achieved at times during therapy.

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\*Factors considered in prediction: show of initiative; active rather than passive attitudes during therapy; relative consistency of changes in speech behavior in therapy sessions and outside them; reports by the patient of positive feelings about the therapy, positive or accepting reactions by his associates, and of plans to continue working on his own.

Rating Scale for Clients

SELF-EVALUATION RATINGS

NAME \_\_\_\_\_

INSTRUCTIONS:

You are to rate yourself on a 7-point scale using the following guides. Please be as accurate as possible in your evaluation. This will help us to improve our program for future patients.

I. SPEECH

- 7 - I have a minimum of tension or forcing in my speech mechanism or of general tension during speech; maximum reduction in number and frequency of secondary manifestations; maximum reduction of avoidances in my speech pattern; maximum reduction in frequency and severity of stuttering.
- 4 - My speech shows a moderate amount of the above characteristics; or shows them inconsistently to a moderate degree.
- 1 - There is no change in my overt stuttering pattern. I have no reduction of tension; maximum tension persists in my speech mechanism and/or over my whole body during speech; there is no change in my secondary manifestations and I still have the maximum of avoidances.

RATE YOURSELF BY CIRCLING THE APPROPRIATE NUMBER.

1            2            3            4            5            6            7

II. ATTITUDE

- 7 - I feel I have the maximum degree of insight into my stuttering. I fully accept the role of the stutterer and this is revealed by a minimum of avoidances in my speech pattern and in social situations.

4 - I have a moderate amount of the above characteristics;  
and /or show them inconsistently.

1 - I have no insight into my stuttering; I am not able to  
accept stuttering; there is no reduction of avoidances  
in my speech pattern or in my social behavior.

RATE YOURSELF BY CIRCLING THE APPROPRIATE NUMBER.

1            2            3            4            5            6            7

III. PREDICTION:

7 - I feel I have an excellent chance of maintaining the  
gains I have made and of making continued progress.

4 - I feel I have a fair prospect of making further improve-  
ment; but I have some doubts about this.

1 - I feel I will make no further improvement. What has  
been accomplished during therapy will not last.

RATE YOURSELF BY CIRCLING THE APPROPRIATE NUMBER.

1            2            3            4            5            6            7

## STUTTERER'S SITUATION RATING SHEET

(Adapted from Johnson, Wendell, et al. Diagnostic Methods in Speech Pathology. New York: Harper and Row, 1963, pp. 288-290)

NAME \_\_\_\_\_ RANK \_\_\_\_\_

SEX \_\_\_\_\_ AGE \_\_\_\_\_ DATE \_\_\_\_\_

After each item put a number from one to five in each of the four columns.

Start with right-hand column headed Frequency. Study the five possible answers to be made in responding to each item, and write the number of the answer that best fits the situation for you in each case. Thus, if you seldom eat in a restaurant, certainly not as often as once a week, write the number five in the Frequency column opposite item number one, "Ordering in a restaurant." In like manner respond to each of the other 39 items by writing the most appropriate number in the Frequency column. When you have finished with this column fold it under so you cannot see the numbers you have written. This is done to keep you from being influenced unduly by the numbers you have written in the Frequency column when you write your responses to the 40 situations in the Stuttering column.

Now, write the number of the response that best indicates how severely you stutter in each situation. For example, if in ordering meals in a restaurant you stutter with less than average severity (for you), write the number two in the Stuttering column after item number one. In like manner respond to the other 39 items. Then fold under the Stuttering column so you will not be able to see the numbers you have written in it when you make your response in the Reaction column.

Following the same procedure, write your responses in the Reaction column, fold it under, and, finally, write your responses in the Avoidance column.

Numbers for each of the columns are to be interpreted as follows:

I. Frequency

1. This is a situation I meet very often, two or three times a day or even more, on the average.
2. I meet this situation at least once a day with rare exceptions (except Sunday, perhaps).
3. I meet this situation from three to five times a week on the average.
4. I meet this situation once a week, with few exceptions and occasionally I meet it twice a week.
5. I rarely meet this situation - certainly not as often as once a week.

II. Stuttering

1. I stutter least severely (for me) or not at all in this situation.
2. I stutter with less than average severity (for me) in this situation.
3. I stutter with average severity (for me) in this situation.
4. I stutter with more than average severity (for me) in this situation.
5. I stutter most severely (for me) in this situation.

III. Reaction

1. I definitely enjoy speaking in this situation.
2. I would rather speak in this situation than not.

3. It's hard to say whether I'd rather speak in this situation or not.
4. I would rather not speak in this situation.
5. I very much dislike speaking in this situation.

#### IV. Avoidance

1. I never try to avoid this situation and have no desire to avoid it.
2. I don't try to avoid this situation, but sometimes I would like to.
3. More often than not I do not try to avoid this situation, but sometimes I do try to avoid it.
4. More often than not I do try to avoid this situation.
5. I avoid this situation every time I possibly can.

	<u>Avoidance</u>	<u>Reaction</u>	<u>Stuttering</u>	<u>Frequency</u>
1. Ordering in a restaurant.	_____	_____	_____	_____
2. Introducing myself (face to face).	_____	_____	_____	_____
3. Telephoning to ask price, train fare, etc.	_____	_____	_____	_____
4. Buying plane, train or bus ticket.	_____	_____	_____	_____
5. Short question or statement before a group (10 words or less).	_____	_____	_____	_____
6. Telephoning for taxi.	_____	_____	_____	_____
7. Introducing one person to another.	_____	_____	_____	_____
8. Buying something from store clerk.	_____	_____	_____	_____
9. Conversation with good friend.	_____	_____	_____	_____

	<u>Avoidance</u>	<u>Reaction</u>	<u>Stuttering</u>	<u>Frequency</u>
10. Talking with a commissioned officer informally.	_____	_____	_____	_____
11. Long distance telephone call to someone I know.	_____	_____	_____	_____
12. Conversation with my father.	_____	_____	_____	_____
13. Making short speech (1 or 2 minutes) in a familiar group.	_____	_____	_____	_____
14. Giving my name over telephone.	_____	_____	_____	_____
15. Conversation with my mother.	_____	_____	_____	_____
16. Talking with an NCO on official business.	_____	_____	_____	_____
17. Going to a house or office and asking for someone.	_____	_____	_____	_____
18. Making a speech to unfamiliar audience.	_____	_____	_____	_____
19. Talking with other players during a playground game.	_____	_____	_____	_____

	<u>Avoidance</u>	<u>Reaction</u>	<u>Stuttering</u>	<u>Frequency</u>
20. Talking with a commissioned officer on official business.	_____	_____	_____	_____
21. Saying hello to a friend going by.	_____	_____	_____	_____
22. Asking permission to go on leave or on pass.	_____	_____	_____	_____
23. Telling a funny story with one stranger in the crowd.	_____	_____	_____	_____
24. Telling a person a message from someone else.	_____	_____	_____	_____
25. Conversation with friend or acquaintance of the opposite sex.	_____	_____	_____	_____
26. Parlor games requiring speech.	_____	_____	_____	_____
27. Reading aloud to friends.	_____	_____	_____	_____
28. Participating in a bull session.	_____	_____	_____	_____
29. Dinner conversation with strangers.	_____	_____	_____	_____

	<u>Avoidance</u>	<u>Reaction</u>	<u>Stuttering</u>	<u>Frequency</u>
30. Talking with my barber or beauty operator.	_____	_____	_____	_____
31. Telephoning to make appointment, or arrange meeting place with someone.	_____	_____	_____	_____
32. Asking the First Sergeant a question.	_____	_____	_____	_____
33. Asking the supply sergeant for materials or information.	_____	_____	_____	_____
34. Talking with someone I don't know well while waiting for bus or meeting, etc.	_____	_____	_____	_____
35. Talking with other players during a table game.	_____	_____	_____	_____
36. Taking leave of a host or hostess.	_____	_____	_____	_____
37. Conversation with friend while walking along the street.	_____	_____	_____	_____

	<u>Avoidance</u>	<u>Reaction</u>	<u>Stuttering</u>	<u>Frequency</u>
38. Buying stamps at post office.	_____	_____	_____	_____
39. Giving directions or information to strangers.	_____	_____	_____	_____
40. Talking with an NCO informally.	_____	_____	_____	_____

Unc.

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<b>13. ABSTRACT</b> <p>The aim of this phase of the study was to evaluate a program of therapy for stutterers, including a follow-up six months after therapy was terminated. An attempt was made to measure changes in selected personality factors as well as in attitudes toward speaking and in the audible and visible characteristics of stuttering, as a result of therapy. An attempt to find a reliable predictor of therapeutic outcome was unsuccessful.</p> <p>The present study helps to establish that (1) statistically significant changes in both speech and personality variables may occur during relatively short-term, intensive speech therapy that includes a psychotherapeutic orientation; and (2) in general, these changes tend to persist over a period of at least six months following the end of therapy.</p> <p>Two estimates of progress--therapists' ratings and psychometric measures--showed a moderate degree of agreement. When therapists' and clients' ratings were compared, the latter consistently tended to rate themselves higher than did the therapists.</p>			

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