

THE MAINTENANCE OF FLUENCY FOLLOWING INTENSIVE THERAPY

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ABSTRACT

Adult stutterers were tested in the post-treatment period following attendance at intensive summer clinics. In the first probe, approximately 12 months post-treatment, a group of 13 stutterers demonstrated a relapse of approximately 22%. Five stutterers from the group were retested six months later, after the maintenance procedures had been revised, and demonstrated a reversal of the trend toward relapse. A maintenance program and measurement procedures are described.

INTRODUCTION

In recent years a number of treatment programs have been developed which enable stuttering clients to achieve virtually stutter-free speech in the clinic and to transfer the fluent speech into outside situations. Some of these programs have been described by Curlee and Perkins, 1969; Ryan and Van Kirk, 1974; Ingham, Martin and Kuhl, 1974; Costello, 1975; Shames and Egolf, 1976 and Boberg, 1976. Establishment and transfer of fluency are only the initial steps in the total treatment program. The next and more difficult step is to develop an effective program for long-term maintenance. The ultimate test of any therapy program is whether fluency can be maintained at a satisfactory level in the client's normal, post-treatment environment.

Objective results on maintenance of fluency following treatment are sparse. With one or two exceptions the reported data indicate that a substantial number of stutterers do experience some degree of relapse in the post-treatment period (Prins, 1970; Ryan, 1974; Mowrer, 1975.) Perkins (1973) has observed that while a large proportion of stutterers can be expected to acquire normal fluency during treatment, "less than 50% appear able to maintain this improvement permanently; the extent of deterioration ranges from slight to considerable."

Not only is there a dearth of published reports on maintenance of fluency, but even the few reports that are published contain very little information about how measurements were made during maintenance, the nature of the maintenance programs or the possible reasons for the observed relapses.

The purpose of this paper is to describe measurement procedures and present results of a maintenance program conducted as a follow-up to the summer program outlined in the following paragraph.

Boberg (1976) described an intensive summer program for adult stutterers. The clients spent seven hours per day for three weeks in small groups. They progressed through a five-phase program which included prolongation, monitoring and transfer activities. Pre and post video samples of conversational speech indicated that the mean percentage of stuttered syllables for 21 clients decreased from 21% to 1.3%.

Maintenance Program

At the end of the intensive period, clients were introduced to a program designed to maintain the newly established fluency in the post-treatment environment. Each client was asked to complete a number of daily speech activities, record results and report back to the clinic on a pre-arranged schedule.

Although a small number of clients faithfully completed the program it soon became apparent that many were unwilling or unable to do so. After one year, our records were so incomplete and the excuses for non-performance so elaborate that it became obvious that the maintenance program was not working. We had assumed that the clients would be prepared to spend approximately 30 minutes each day on speech and recording activities in order to maintain the fluency level established in the clinic. Their performance records indicated that our assumptions were incorrect.

Some of the excuses for non-performance appeared to be valid. Several stutterers lived long distances from the clinic and were unable to attend regular clinic meetings. Others reported that they lived and worked in isolated rural communities which did not present many opportunities for daily speech activities. Still other clients offered less plausible reasons such as being too busy in their job or simply forgetting about the assignment. In any case the experimenters decided to abandon the scheduled maintenance program and try another approach.

"Refresher weekends" were arranged throughout the year at intervals of approximately three months. During these weekends the clients returned to the clinic on Friday evening and stayed until Sunday afternoon. The program was essentially a telescoped version of the three-week program but provided more room for individual requests. For instance if a stutterer wished to spend most of the weekend using prolonged speech or engaging in transfer activities he was permitted to do so. In other words the experimenters provided a loosely structured program of activities but the individual was free to focus on the features which he felt to be most important. In general the stutterers would start with prolonged speech of approximately 60 syllables/minute and continue at that rate until their disfluency rate dropped below 2%. The rate was then gradually increased until they were speaking between 140 and 200 syllables/minute with the disfluency rate still below 2%. Prolonged speech was achieved through instruction and the electronic equipment used in the original program (Boberg, 1976) which provided individual and immediate feedback to each client concerning syllable rate/minute and total stutterings. They were also required individually to monitor their own stutterings and check their hourly totals with the attending therapist. On Saturday evening and Sunday most of the stutterers engaged in transfer activities including phone calls and conversations with strangers.

The experimenters decided to use two refresher weekends as occasions to measure formally or probe the fluency level in a variety of situations. These probes were always done at the beginning of the weekend, before the clients had participated in any of the scheduled therapy activity.

Clients

Thirteen adult clients who had enrolled in one of the previous intensive summer clinics attended a refresher weekend held in the spring of 1975. The post-therapy time period ranged from six to 24 months with a mean of 12.5 months. This group will be referred to as Maintenance Probe I (MP-I). Five members of the MP-I group attended a refresher weekend, approximately six months later when the second maintenance probe was made. The post-therapy time period for the five clients ranged from 18 to 20 months with a mean of 18.6 months. This group will be referred to as MP-II.

Probe Measures

Video and audio tape recordings were made of each client in four different speaking situations. These situations were similar to the pre and post measures used with the intensive summer clinics (Boberg, 1976) and are described below.

1. Video conversation (Video-conv.) The client was taken to the Audio-visual center and introduced to a stranger who engaged him in conversation. The interviewer asked the client questions about his interests until a two-minute sample was obtained.
2. Video-reading (Video-read.) After the conversation was completed the client was handed a reading passage taken from a popular weekly magazine. The client read until a two-minute sample was obtained.
3. Conversation confederate (Conv-conf.) The client was taken to another building on campus where a confederate, posed as a student, was reading in a lounge. The client was instructed to approach the confederate, introduce himself and ask if he might converse with her for a few minutes. The client was then required to turn on the tape recorder which he carried and continue the conversation until a two minute sample had been obtained. The probe situation was developed as a compromise between an ideal, non-clinic, covert test situation and the need to obtain data in a standardized, repeatable situation. None of the clients made any statements following the experience to indicate that they perceived the situation to be anything but a spontaneous conversation with a stranger.
4. Telephone-confederate (Tel-conf.) Each client was asked to call one of the two numbers allegedly taken from the classified advertisements of the local paper. The experimenters had arranged for two confederates to assume the role of 1) a personnel officer for a summer camp which offered employment for counsellors and 2) a landlord with an apartment for rent. The confederates had been instructed to be helpful and keep the client on the phone until a two-minute sample had been obtained. None of the clients indicated any suspicions that the phone calls were not genuine.

Reliability of Measures

The tape recordings were analyzed, using the electronic counting equipment and definition of stuttering described in an earlier paper (Boberg, 1976), to yield the following measures:

- a. total syllables per minute
- b. total stutterings per minute
- c. percentage of stuttering

To determine the reliability of judgments of the occurrence of stuttered and non-stuttered syllables, an inter-observer agreement procedure was used. An independent observer counted stuttered and non-stuttered syllables in 12 two-minute samples, three from each of the four probe situations. The observer's counts were then compared to those of the experimenter. Using the method described by Ryan (1974) the percentages of agreements were computed for:

- a. total syllables per minute: Range = 94.1% to 100%, Mean = 97.1%
- b. total stutterings per minute: Range = 75% to 100%, Mean = 91.8%.

Results

The total syllables/minute and the total stutterings/minute were converted to percentage of disfluent syllables for each of the 13 clients and appear in Table 1. The four probe measures are presented in the four quadrants of the table. The pre and post-clinic scores are also provided for purposes of comparison. Mean scores appear in the bottom row of each quadrant. The first five clients listed in each column participated in both of the maintenance probes while the remaining eight clients were only able to participate in the first maintenance probe.

Examination of the scores in the MP-I columns indicates an increase in disfluency compared to the post-clinic measure, taken immediately after the intensive clinic. The mean score in the post-clinic probe for all four measures is 1.95%; the mean score in MP-I for all four measures is 7.72%, which is an increase of 5.78%. If this increase is viewed as a percentage of the original, pre-clinic probe measure (\bar{X} = 26.5%) it turns out to be an increase of 22.18%. In other words, when measured against their original, pre-clinic fluency level, the clients relapsed 22.18% from the level they had attained at the end of the intensive clinic. It may also be observed in Table 1 that the disfluency increases observed at MP-I are the greatest for the two probes which involved the confederate.

The data in Table 1 indicate that four of the five clients who participated in the second maintenance probe generally stuttered less than in the first maintenance probe. The fifth client (LM) showed a decrease in one condition but increased in the other three conditions during the second probe.

Since the results of this study have been presented as single-subject data in Table 1 we did not undertake a statistical analysis. However, we have presented the mean percentage scores for all of the clients in Figure 1. This was done to help the reader visualize the changes across the four time periods. The curves show the changes in the percentage of disfluency for each of the probe measures in the pre, post, MP-I and MP-II measurement periods. A separate mean has been calculated for the five clients who participated in both of the maintenance probes and is indicated on the graph by (N=5).

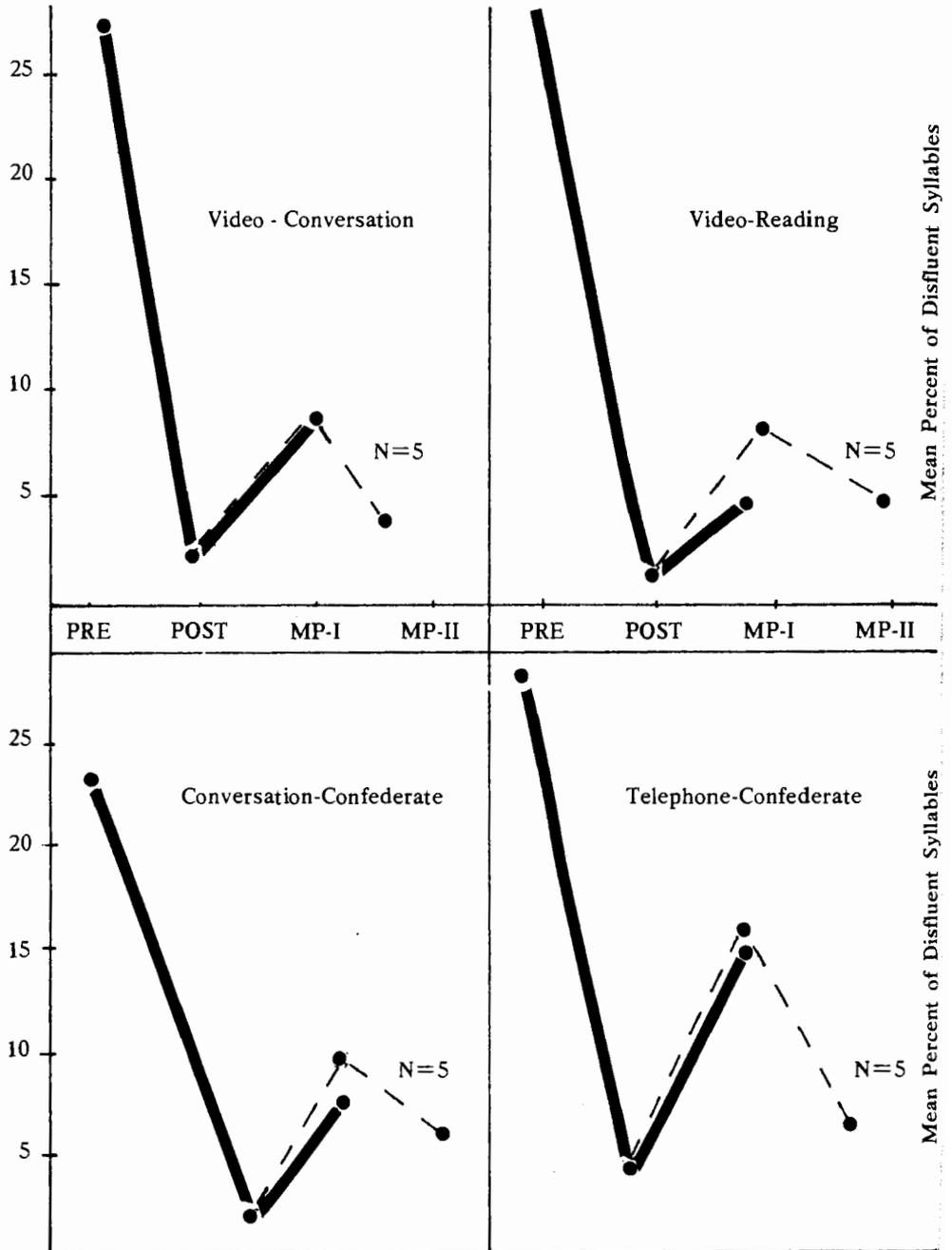
Discussion

The results presented in the previous section indicate that the stutterers included in this study experienced a partial relapse during the post-treatment period. However, when five of these clients were tested in a second probe, approximately six months after the first, the trend toward relapse appeared to have been arrested and even reversed.

Table 1: The percentage of disfluent syllables for each client in the pre, post and maintenance probes in each of the four test situations

VIDEO - CONVERSATION % DISFLUENCY					VIDEO - READING % DISFLUENCY			
Clients	Pre	Post	MP-I	MP-II	Pre	Post	MP-I	MP-II
RC	27.3	4.0	9.2	9.8	32.7	1.2	4.6	7.6
HW	19.1	3.0	5.5	2.9	27.2	2.0	17.8	6.8
JS	3.4	.2	.3	1.4	4.2	.2	1.5	0
LM	24.7	.2	2.3	1.8	23.5	0	1.3	8.8
SH	26.6	1.4	14.8	.5	15.7	1.2	6.3	.9
WC	25.8	0	1.5		33.9	.4	.4	
TK	19.7	0	.2		31.2	0	0	
CM	21.7	3.3	7.1		20.6	6.3	9.2	
KK	20.9	.9	17.1		18.4	.3	18.7	
GJ	27.8	0	2.4		9.0	.4	0	
GB	32.3	3.1	9.8		39.3	.5	0	
LT	32.2	3.6	8.1		33.9	1.1	6.7	
DO	61.5	3.1	3.2		70.0	.2	1.2	
\bar{X}	26.4	1.8	6.3	3.3	27.7	1.1	4.9	4.8
CONVERSATION - CONFEDERATE % DISFLUENCY					TELEPHONE - CONFEDERATE % DISFLUENCY			
Clients	Pre	Post	MP-I	MP-II	Pre	Post	MP-I	MP-II
RC	22.8	2.8	11.1	6.3	24.0	4.7	19.8	12.3
HW	13.1	2.5	6.7	4.0	14.6	3.2	12.4	2.3
JS	1.8	1.2	1.1	.5	5.6	.7	1.2	1.1
LM	18.0	.3	2.5	9.0	18.7	.4	7.5	13.3
SH	18.0	.9	20.9	2.9	26.4	.7	24.2	1.8
WC	18.4	0	.5		23.7	.7	2.2	
TK	20.0	0	9.2		25.5	0	21.5	
CM	11.4	1.4	6.1		54.2	9.2	23.1	
KK	4.7	1.1	5.6		5.4	3.2	4.0	
GJ	29.7	2.3	3.2		22.5	2.1	12.8	
GB	37.9	4.9	7.7		48.6	5.2	11.2	
LT	25.0	3.1	4.4		33.9	3.0	4.7	
DO	58.3	3.2	11.8		68.2	6.6	20.9	
\bar{X}	21.5	1.8	7.0	4.5	28.6	3.1	12.7	6.2

Figure 1: The mean disfluency scores for all of the clients in the pre, post and maintenance probes in each of the four testing situations. Separate data points are shown for the five clients who completed the second maintenance probe.



When the stutterers were asked why they had relapsed they offered a number of reasons. Some clients reported that as long as they had followed a schedule of daily speech activities they were able to maintain their post-clinic level of fluency. After several months of this demanding self-discipline they tired of the effort and gradually abandoned the systematic program. Other clients claimed that they could not find the time in their daily schedule to follow a systematic maintenance program. Still others readily admitted to a degree of relapse but insisted that they were content with their level of fluency. Examination of the curves in Fig. 1 would support this latter group's contention that although relapse had certainly occurred the overall performance level was still much better than before treatment. The motivation for continued effort appeared to have been reduced in this group.

Four of the five clients who participated in the second probe showed a reduction in the percentage of syllables stuttered compared to their performance in the first probe. Although the small number of clients involved suggests caution in generalizing the results, the reversal trend was quite marked and appeared in all four probe measures. The reasons for the reversals are not entirely clear but some suggestions may be offered. One factor which probably contributed to the reversal effect was the scheduled refresher weekends. These weekends provided opportunities for the clients to review many of the speech activities which had produced the high level of fluency and self-confidence observed at the end of the intensive summer clinic. Several clients commented that the major value of the weekend was to restore some of the self-confidence which they claimed to have lost. Additionally, the weekend experiences may have provided the necessary stimulus to enable the client to continue on his own.

Another possible contributing factor is the actual experience of the maintenance probe. Several stutterers expressed dismay after their performance in the first maintenance probe. It was as if the formal measurements forced them to confront the fact that they were relapsing. It was no longer possible to pretend that the disfluencies that they were experiencing were merely a daily variation. Having accepted this fact and the long range consequences of the trend they were following, they apparently determined to "get back to work on speech activities".

The importance of sampling speech fluency in a variety of speech situations should also be mentioned. Fig. 1 suggests that the relapse was greatest in the two situations where the stutterer spoke to a confederate outside of the clinic building. Many clients had commented on the increase in fluency which they usually experienced upon entering the clinic building. The use of confederates in a different building presumably reduced the number of clinic-bound cues. It may be better still to conduct the test probes in covert situations, such as the one described by Guitar (1976), where the clinic-bound cues are absent. However, covert situations are very difficult to arrange for large groups of clients from different backgrounds, particularly if the probe is to be repeated.

Collecting data in the post-treatment period is difficult, frustrating and time consuming. The whole question of what constitutes normal speech and how to measure it is incredibly complex. Van Riper (1971) has pointed to the many dimensions of stuttering which must be included in an assessment of severity. It is possible that we will not be able to make valid and reliable measurements in a post-treatment environment until we have refined and developed the available measurement procedures. Moreover, we also need to address ourselves to such

difficult questions as what constitutes an acceptable level of fluency for the client as well as the therapist - the two expectations are not likely to be identical. Several of the clients in the present study are still experiencing some degree of struggle behaviour. Others are speaking at a syllable rate which is slightly below normal. At this point we are not sure which of several options we will follow. Is it feasible and necessary to continue maintenance programs for several years? Are other strategies available which might produce a more stable fluency? This study was not designed to answer such complex questions but it is clear that those of us who work with stuttering can no longer ignore the challenges of maintaining fluency in the post-treatment environment.

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