

Trial Hearing Aid Use Follow-Up Investigation

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INTRODUCTION

The methods used for selection of appropriate amplification for the hearing impaired client have been, and continue to be an area of debate and research within the field of Audiology. Little agreement exists among audiologists as to how hearing aids should be selected. Furthermore, research on the subject of hearing aid evaluations is inconclusive, and often contradictory. One study (Shore et al., 1960), which examined conventional tests did not establish any clear cut or reliable differences among the instruments evaluated. Numerous researchers, in an attempt to discover differences among hearing aids, as well as differences in the hearing aid-user interaction, have designed and tested various evaluation procedures (Carhart, 1946; Resnick and Becker, 1963; Zerlin, 1962; Thompson and Lassman, 1970; Wilson and Linnell, 1972). However, none of the tests or procedures designed has been adequately studied for reliability of measurement, and thus they prove to be of limited utility.

Alpiner (1975), in his chapter focusing on hearing aid selection for adults, states that "any person whose hearing is not within the normal range is a potential candidate for amplification." The key to this sentence is the word "potential". As pointed out above, both research and clinical experience show that current audiologic tests and evaluation protocols are unable to predict the benefit a given listener will receive from a given instrument. Further proof of this statement is in part borne out by the number of clients who receive evaluation, purchase an aid, and subsequently leave it in the drawer because they derive no communicative benefit from their instrument. Current evaluation procedures do not reliably show significant differences between hearing aids on

aided performance measures, nor do these procedures reliably predict which individuals will and will not be good hearing aid users. The reasons for such inadequacy in tests and procedures are numerous, two of the most important being: 1) current tests seem insensitive to aided performance differences, especially with reference to speech discrimination tasks, and 2) current protocols for the most part fail to replicate everyday listening environments, and thus poorly predict how a given listener with a particular instrument will function in a normal listening environment.

Due to these and other inadequacies in the hearing aid evaluation procedure, the concept of a trial period with a hearing aid was adopted. Rassi and Harford (1968) noted that the objective of hearing aid selection service is to determine the aid which yields the most favorable performance for the individual. Because of the inadequacies of evaluation procedures as well as characteristics of the candidate's hearing impairment, this is often an impossible task. A recommendation for a trial period with a specific instrument thus becomes a method of determining whether amplification is appropriate, or whether the particular instrument recommended is suitable for the individual's needs. In a study of one clinic, Rassi and Harford (1968) found that the use of a trial rental plan greatly reduced the number of clients for whom an aid was contraindicated. This appeared due to the fact that the audiologists were less reluctant to recommend an aid if they knew a trial plan was available to the client, who for one reason or another, was considered a borderline candidate. It is interesting to note that some clients for whom a recommendation for purchase had been made by the audiologist, also first obtained the aid on a trial basis (Rassi and Harford, 1968).

In order for a trial rental plan to be successful, non-dispensing audiologists require the co-operation of hearing aid dealers, as the client must be able to obtain the desired instrument on a rental from the dealer. This fact may change in the future if audiologists dispense directly. While there may be some initial opposition to the idea, it has been shown (Rassi and Harford, 1968) that the vast majority (90%) of clients renting an aid on a trial basis also purchase one. Thus, dealers need not fear loss of sales from this type of program. Furthermore, it was found that patients who participated in the rental period had very favorable attitudes toward the plan, as well as feelings of satisfaction with the dealers' services. Such information should certainly make dealers responsive to such a program. It should be also noted that many hearing aid dealers are in fact in favor of a rental plan

(Handelman, 1974). In their study (Rassi and Hardord, 1968) found the average rental to be 36 days, with all clients feeling this period was adequate to make a decision. In contrast to this, Wilson and Linnell (1972) found that a two to three day period seemed sufficient time to make a decision as to the appropriateness of the aid. Hearing aid dealers, on the other hand, may tend to see rentals as an ongoing type of program, with the rental or leasing arrangement lasting for a period of years. Finally, new FDA regulations require the instructional brochure provided the client to include information regarding the availability of a trial-rental or purchase option program. All of these developments in dealer-audiologist-user relations make the implementation of a trial program feasible.

The concept of a trial rental period also seems sound when one examines the number of hearing aid users as a function of age. In a survey of users completed by Audivox, (Stutz, 1969) it was discovered that the number of users could be broken down into the following categories: 1) 0-20 years, 12%; 2) 21-48 years, 14%; 3) 49-64 years, 26%; and 4) 65 years +, 48%. It is evident that well over half of the hearing aid users are of the age where presbycusis could in part account for the loss, in addition, almost half (48%) could be considered geriatric clients. As poor discrimination of speech is often associated with presbycusis, many of the potential users in this age range may not derive enough communicative benefit from amplification to warrant purchase of an aid. Thus, a trial rental plan seems an appropriate method for allowing the individual to decide whether or not he can benefit from amplification. Also as the population continues to grow older, it would appear that audiologists will serve more clients for whom a trial plan is the most feasible recommendation.

While not stating that the trial plan is the most appropriate recommendation of a hearing aid for the geriatric patient, Alpiner (1965) does discuss difficulties in aural rehabilitation of the geriatric client. In working with this type of client, the two major areas of concern are the psychological aspects of aging, which involve motivational factors, and the actual benefits of amplification and therapy. If the geriatric client is not particularly motivated toward using a hearing aid, and if the audiologist is unsure about benefits that may be derived, it seems that a trial period would most certainly be warranted.

Thus, it appears that a trial program of amplification can be a very effective type of recommendation for many clients. Unfortunately, there has been very little investigation of trial rental programs. This may be due in part to one of the major problems

faced by most audiology clinics, that of systematic patient follow-up. After a recommendation is made, as for example, for a hearing aid trial, little if any subsequent client contact may occur. Often, the audiologist does not know if his recommendation was followed. The audiologist may be able to assist the trial hearing aid user by re-evaluating the client with the trial instrument prior to actual purchase. Unfortunately, when hearing aid trial rental post-testing is made available on an optional, voluntary basis, the client may fail to take advantage of the service. In order to determine to some degree the effectiveness of the trial rental recommendation of one university clinic, a follow-up investigation of trial hearing aid user was planned.

SUBJECTS AND PROCEDURES

All of the subjects for this study were obtained from client records at a University Speech and Hearing Clinic in a city of approximately 50,000 population. In order to participate in the study, a subject had to meet the following criteria: 1) he had received an audiologic evaluation during the period 1972-1977; 2) at the time of evaluation, a recommendation for a trial rental period with a hearing aid was made; and 3) he had not received any type of follow-up or re-evaluation at the clinic. From a pool of approximately 140 clients meeting these criteria, 60 clients, mostly adults over age 50, were randomly chosen to participate in the study.

A questionnaire (copy included in Appendix) composed of 33 questions was designed by the investigator. Questions which fit into one of the following categories were posed: 1) questions pertaining to the rental itself (1-8); 2) questions surrounding the aid, if one was purchased, and the earmold (9-20); 3) questions dealing with current communication problems (21-26); 4) questions concerned with the individual's perceived need for re-evaluation of hearing (27-29); and finally, 5) questions aimed at the use of other rehabilitation measures that had been tried, or that the individual felt might be beneficial (30-33). (See Appendix) A questionnaire was mailed to each of the 60 subjects.

RESULTS AND DISCUSSION

Of the 60 questionnaires sent, 24 or 40% were completed and returned. Another 9, or 15% were returned because of no forwarding address. Of the 24 completed questionnaires, some of the questions posed were not answered, therefore, raw data totals reflect the absence of responses. Results of the responses to questions dealing with the trial rental period are presented in Table 1.

TABLE ONE

	Yes	No	NR	Total
Followed Recommendation	16	5	3	24
Purchased Aid	19	4	1	24
More than one aid tried	3	15	1	19
Purchase another without a trial	1	15	1	17
Physician Approval	11	4	2	17

Analysis of Table 1 indicates that the majority (16/24, 67%) of individuals followed the recommendations of using a trial period. Of the 24 respondents, 19 or 79% purchased an aid. Further investigation revealed that only two of the 16 (13%) who had used a trial period did not purchase an aid. Therefore, 14 of 16 (87%) individuals using a trial period purchased an aid. In addition, three individuals who had not used the trial period purchased an aid, and two of the subjects who did not respond to the rental question also purchased an instrument. Only three of the 18 (16%) respondents tried more than one instrument. Two individuals tried two different aids and the other tried three aids prior to actually purchasing an instrument. Thus, it would appear that the majority of subjects (15/18, 84%) in this study found enough satisfaction with the initial aid tried to purchase it.

Although not represented in Table 1, seven out of nine (78%) who responded to the length of the trial period felt that one month was long enough to make a decision. One respondent felt that the period should be longer than one month, but less than one year, and one subject did not know. Significantly, 15/17 (88%) said they would not consider purchasing another aid without obtaining a trial period. This finding suggests that users feel that a trial is not only important for first-time users but also for experienced users. Also, 11/17 (65%) had received medical clearance prior to trying an aid.

Two of the questions in this section dealing with the rental period pertained to the services and information provided by the hearing aid dealer. Thirteen of the fourteen (93%) felt they had received good service from their hearing aid dealer. Services which individuals felt the dealer should provide included: 1) providing several consultations during the trial period, and providing them at the client's request; 2) changing the earmold as necessary; 3) providing information on how the aid works, and some trouble shooting ideas; and 4) relaying information regarding the upkeep of the instrument. Eleven of the 12 (92%) respondents believed they had been initially provided with all the necessary information related to care and use of an aid. One sub-

ject mentioned he had not been told to remove the battery when not using the aid.

The next section of the questionnaire focused on the instrument itself. As the majority of responses in this section were not easily represented in tabular form, a table has been omitted. Of the 17 respondents, all were aided monaurally. Eleven (64%) wore behind-the-ear aids, two (12%) wore eye glass models, and 4 (24%) wore in-the-ear aids. The length of time the individual had the aid ranged from one to five years, with a mean of approximately three and one half years. Ten of the 14 subjects (71%) said they only wore the aid in certain situations, four (29%) reported wearing it all of the time. In terms of hours per day usage, three (21%) said they rarely used their aids, three (21%) responded all the time, and one (7%) individual remarked that the amount of time varied greatly.

Situations in which an aid was most frequently worn by those who did not wear it continuously were: plays, lectures, church, social gatherings where there was not too much noise, and when watching TV. Also respondents who did not wear the aid continuously, complained more frequently of a problem with background noise, and noted that they tried to wear the aid only in situations where background noise was at a minimum.

When asked to rate how much better they heard in general with their hearing aid than without it, the majority (10/15, 67%) responded somewhat better. Four (27%) individuals said much better, one (6%) indicated no difference. However, when asked to rate how well they heard in noisy environments with the aid, 5/13 (38%) responded that they heard no better than without the aid, 3/13 (23%) rated their ability as worse with the aid, one indicated better than normal hearing, 2 (8%) indicated the same as other listening situations, and 3 (23%) rated their ability as fair.

Regarding repair of instruments, only three (18%) subjects had returned their aids for repair more than once, seven (44%) had returned instruments once, and 6 (38%) had never had repairs. None of the individuals found the number of repairs excessive, however, one subject complained about the cost of repair, and being advised by the dealer to purchase a different aid rather than repairing his. Only three individuals indicated having ever used a loaner aid, one said he was unable to obtain one, and the rest of the subjects (13/17) either did not ask about a loaner, or did not respond to the question.

As the earmold may be a common cause of adjustment problems to the hearing aid user, three questions dealing with earmolds were asked. Only three of the 14 (22%) subjects who had

purchased an aid had ever had a new earmold made. The reasons given were discomfort and being worn out. Eleven (78%) individuals indicated they had never found it necessary to have a new impression taken. Thirteen of the fourteen (93%) respondents found their earmold to be very comfortable (7), or somewhat comfortable (6). Only one individual found the earmold uncomfortable. Also, only one individual indicated difficulty in learning how to insert the mold, stating approximately two months to do so. All other respondents accomplished this in a period ranging from a day to a week.

Finally two questions focusing on individual satisfaction with the instrument were posed. Of the 12 respondents, 5 (42%) were very satisfied, 5 (42%) somewhat satisfied, and 2 (6%) were dissatisfied. Fifty percent (5/10) of the individuals said there were not any features connected with their present aid which they found problematic. Complaints from the other five respondents included: no telecoil, discomfort, aid not fitting all eye glasses, and problems with noise.

The next section was viewed as highly important, as the function of a hearing aid should be to increase communicative ability. The majority of individuals (10/15, 67%) rated their communication ability with the aid as fair, five (37%) rated their ability as very good. Only one subject (6%) felt his ability was no better than without the aid. Subjects were next asked to list situations which caused communication difficulty. The largest problem appeared to be one of background noise (9/12, 75%). Large groups and crowded rooms also caused much difficulty (6/12, 50%). Most likely this is related to difficulty with background noise, and the ability to separate the primary message from competing messages. Other comments included not hearing clearly (3/12, 25%), and not liking the CROS arrangement (1/12). Two questions dealing with changes in the user were also posed. Eight of 17 (41%) responded that neither they, nor anyone else had noticed particular changes. The rest of the respondents (9/17, 53%) indicated they had noticed themselves tending to be less antisocial, to talk more and to ask others to speak up. One individual mentioned being more resigned to not "catching" everything said. Also the subjects were aware that others found them easier to talk to (60%), and that others realized they could indeed hear better (40%). The majority (11/14, 79%) of the respondents also indicated that very few people noticed their aid. One mentioned that some children poked fun, and two subjects indicated that some people immediately spoke louder upon the realization that the individual wore an aid. In terms of advantages and disadvantages

of hearing aid use, most subjects remarked they heard more of what was said, and could participate better. However, many of these individuals also complained about amplification of noise.

The final sections of the questionnaire focused on audiological reevaluation, and on the need for aural rehabilitative services. For most subjects it had been at least three years since their hearing had been tested (8/14, 57%), 3/14 (21%) less than a year, and 3/14 (21%) two years. Only 5/14 (36%) subjects had received an aided evaluation of hearing by an audiologist. Most individuals (60%) felt hearing should be checked by the audiologist every one to two years. Only 2/14 (14%) individuals had ever received some form of aural rehabilitation other than obtaining a hearing aid. One indicated that he had received speech reading from an audiologist, the other indicated services had been provided by a hearing aid dealer. Only one of the two (the one receiving audiological services) felt the service was of benefit. Finally, only one of the individuals (total 10) who had not received additional aural rehabilitation felt such services would be helpful. The remaining respondents believed they could not be helped, or their hearing was not poor enough to warrant such services.

CONCLUSIONS

Although the results of this study should certainly be viewed as tentative as the number of respondents to all questions was quite small, certain generalizations may be drawn from the data. 1) Most individuals did follow the recommendation made for a trial rental, indicating that this type of referral system is effective in getting individuals to try an aid. 2) Most individuals who tried an aid did purchase one, thus at least during the one month trial period, they judged the aid to be of enough benefit to purchase it. Furthermore, the majority of individuals were satisfied with the first aid tried. 3) Eighty-eight percent of the subjects would not purchase another aid without first obtaining an initial trial, which again points toward apparent appropriateness of, effectiveness of, and client satisfaction with a trial program. In addition, most individuals who worked with a dealer on a trial program found his service satisfactory. It is unknown if as high a percentage of individuals who simply purchase an aid feel the same way. More specifically, do clients who use a trial period receive more thorough hearing aid orientation follow-up services? 4) Most users in the study only wore their aid in certain situations rather than continuously. Almost all of the respondents felt they heard at least somewhat better with their aid. Intuitively, this would be expected if the individual had indicated he continues to use his aid.

Users who did not find an aid helpful most likely no longer wear it. This again points to the usefulness of a trial program, where the user himself is given the opportunity to judge the effectiveness of the instrument. 5) Amplification of competing messages or of background noise appears to cause the most dissatisfaction with an aid, and also accounts for the most difficulty in communication. However, 84% of the sample were at least somewhat satisfied with their instrument. Again, this would be expected as the clients who are most dissatisfied probably discontinue use of their aid. 6) Only about one third of the clients who responded to this questionnaire rated their communicative ability as good. However, only a small percentage (14%) had ever received any additional rehabilitative services, and most importantly, the majority felt such services would not be very beneficial. This highly suggests that audiologists have an obligation and opportunity to provide as complete a rehabilitative program as possible. Both public education regarding the opportunity for additional services, including re-evaluation, as well as the provision of quality programs are most likely needed. The findings of this study indicate that a trial rental period with a hearing aid can be an effective recommendation. Further study of such rehabilitation plans and programs is warranted.

BIBLIOGRAPHY

Alpiner, J., "Diagnostic and Rehabilitative Aspects of Geriatric Audiology," *ASHA*, 7, 455-459 (1965).

Alpiner, J., Hearing Aid Selection for Adults, in M. Pollack (ed) *Amplification for the Hearing Impaired*, New York, Grune and Stratton, 1975.

Carhart, R., "Selection of Hearing Aids," *Archives of Otolaryngology*, 44, 1-18 (1946).

Food and Drug Administration, Section 801.420 Hearing Aid Devised Professional and Patient Labelling, and Section 801.421 Conditions for Sale.

Handelman, M., "Twelve Years of Rentals," *Hearing Aid Journal*, 6-9 Jan. (1974).

Rassi, J., Harford, E., "An Analysis of Patient Attitudes and Reactions to a Clinical Hearing Aid Selection Program," *ASHA*, 10, 283-290 (1968).

Resnick, D.M., Becker, M., "Hearing Aid Evaluation: A New Approach," *AHSA*, 5, 695-699 (1963).

Shore, I., Bilger, R.C., Hirsh, I.J., "Hearing Aid Evaluation: Reliability of Repeated Measurements," *Journal of Speech and*

Hearing Disorders, 25, 152-170 (1960).

Stutz, R., "The American Hearing Aid User," ASHA, 11, 459-461 (1969).

Thompson, G., Lassman, F., "Listener Preference for Selective vs. Flat Amplification for a High Frequency Hearing Loss Population," *Journal of Speech and Hearing Research*, 13, 670-672 (1970).

Wilson, L., Linnell, G., "Direct Hearing Aid Referrals: A Three Year Report," *Journal of Speech and Hearing Disorders*, 37, 233-241 (1972).

Zerlin, S., "A New Approach to Hearing Aid Selection," *Journal of Speech and Hearing Research*, 5, 370-376 (1962).

THE TRIAL RENTAL AND USE OF HEARING AIDS: A QUESTIONNAIRE

1) After audiologic evaluation, a recommendation was made for a trial rental period with a hearing aid. Did you follow this recommendation?
Yes _____ No _____ (If no, briefly explain why not.)

2) If so, did you subsequently purchase the aid (or one of the aids) which you tried?
Yes _____ No _____ (If no, why not?)

If the answer to #2 was no, please stop here and return the form.

3) Was more than one hearing aid tried?
Yes _____ No _____ (How many? _____)

4) If a trial period was used, a) how long was it, and b) how successful would you rate it? Please provide information on the trial period being either too long or too short to make a decision.

5) Would you consider purchasing another hearing aid without a trial rental period?
Yes _____ No _____

- 6) What services do you believe a good hearing aid dealer should provide? Do you feel you received such services?
- 7) What information (if any) about the care and use of your hearing aid do you feel should have been initially provided, but were not?
- 8) Did you receive a physician's approval prior to trying your hearing aid?
 Yes _____ No _____
- 9) What kind of a hearing aid do you have?
 _____ one ear _____ body _____ in the ear
 _____ both ears _____ behind the ear _____ eyeglasses
 How long have you had the aid? _____
- 10) Approximately how many hours a day do you wear your hearing aid?
- 11) Do you wear your aid only in certain situations rather than all of the time?
 Yes _____ No _____ (If yes, in what situations, and why?)
- 12) How much better do you hear with your hearing aid than without it?
 _____ much better _____ cannot detect a difference
 _____ somewhat better _____ worse
- 13) How well do you hear in noisy situations when wearing your aid?
 _____ better than normal _____ no better than without the aid
 _____ same as other listening situations
 _____ fair _____ worse than without the aid
- 14) How many times have you returned your aid for repair? _____
 Do you feel this is excessive?
- 15) When you have returned your aid for repair, have you been able to obtain a loaner aid?
 If so, was this aid adequate for your needs?

- 16) Have you ever had a new earmold made?
Yes _____ No _____ If yes, why?
- 17) How comfortable is your present earmold?
_____ very comfortable
_____ somewhat comfortable
_____ uncomfortable
- 18) Approximately how long did it take you to learn to insert the earmold?
(one week, two weeks,2 months?)
- 19) Are there any features about your present aid which you dislike or find problematic? (eg., only shuts off with the battery drawer open, does not have a telecoil, etc.)
- 20) In general, how satisfied are you with your present hearing aid?
_____ very satisfied _____ dissatisfied
_____ somewhat satisfied _____ very dissatisfied
- 21) In general, how would you rate your communication ability when wearing your aid?
_____ very good; much better than without the aid
_____ fair; somewhat better than without the aid
_____ no better than without the aid
_____ worse than without the aid
- 22) What specific situations cause problems in communication for you?

23) What changes (if any) have you noticed in yourself since you began wearing a hearing aid?

24) What changes (if any) have others noticed in you?

25) How do people react when they find out you are wearing a hearing aid?

26) For you, what are the major advantages and disadvantages of wearing a hearing aid?

27) When was the last time you had your hearing evaluated by an audiologist?

28) Has an audiologist ever tested your hearing while you were wearing your aid?
Yes _____ No _____

If yes, what information about your hearing and/or your aid did you receive? If no, do you feel this would be of benefit?

29) How often do you think an individual should have his hearing tested by an audiologist?

30) Have you ever had, or are you currently receiving, some form of hearing rehabilitation? (speech reading, auditory training, speech therapy)
Yes _____ No _____ (If yes, what type of therapy?)

If the answer to #30 was yes, please answer the remaining questions.
If no, please answer the last question.

31) Who provided the service(s)/
_____ hearing aid dealer _____ audiologist
_____ speech pathologist _____ other (specify)

32) Did you feel the service(s) was of benefit to you? (Please explain)

33) If you have not received such services, do you feel they might be helpful to you? (Please explain)