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## EFFECTS OF A CONCENTRATED PROGRAM OF EDUCATION ON THE ATTITUDES OF HEARING IMPAIRED ADULTS

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### INTRODUCTION

In 1974, the American Speech and Hearing Association (ASHA) Committee on Rehabilitative Audiology, upon recognizing the relationship between self-concept, adjustment, and success in a rehabilitation program, recommended that counseling be included in the audiological rehabilitation services available to the hearing impaired population (ASHA, 1974, p. 68). Although the literature suggests the need for counseling with the hearing impaired as a step in the audiological rehabilitation process (Oyer and Hardick, in Oyer, 1976; Hartbauer, 1975; Chermak, 1981; Hardick and Gans, 1982; Wyede in Alpiner, 1982), little research has been done in this area.

Historically, much of the focus on psychological and counseling needs of persons sustaining hearing loss have focused on the deaf population (Menninger, 1924; Berry, 1933; Knapp, 1948; Myklebust, 1960; Levine, 1960). More recently, the counseling needs of the hearing impaired adult have been acknowledged, since the loss of hearing is recognized as a loss to which many diverse reactions may occur.

The term "counseling" as it applies to the audiological rehabilitation of hearing impaired adults refers to both informational and affective aspects. Sataloff (1966) states that one cannot restrict a hearing loss to the ear, itself, since it is impossible to "divorce the ears from what lies between them" (p. 340). Frequently, audiologists lose sight of this fact and focus on their rehabilitative attention on the defective hearing instead of viewing the client as a person with attitudes, assumptions, personality characteristics and a self-concept that may affect performance in a rehabilitation program or communication abilities in general.

The need for educational and affective counseling is supported by several sources (ASHA, 1974; Browd, 1951; Madell, 1973; Brooks and

Johnson, 1981). Markides (1977) discusses a counseling program that is part of the nationwide hearing aid delivery system in both Denmark and Sweden and is under consideration for use in Great Britain. Although various programs are available to audiologists, currently there is no generally agreed upon plan for the delivery of audiological rehabilitation services in the United States. Furthermore, the effectiveness of counseling in the rehabilitation of hard of hearing adults has not been well established. Thus, a need exists for rigorous research in audiological rehabilitation, focusing on the handicapping effects of hearing loss and the effectiveness of intervention strategies employed in hearing rehabilitation.

### PURPOSE OF THE STUDY

The purpose of this study was to examine the effects of a short-term concentrated educational counseling program upon the attitudes toward and knowledge of hearing impairment. The study sought to examine two specific questions:

- 1) Is there a relationship between the informational level that hearing impaired adults possess about their hearing disabilities and their attitudes toward their hearing impairment?
2. If a relationship does exist, is it possible to change the attitudes of hearing impaired adults toward their hearing losses by changing their informational level?

### SUBJECTS

Six hearing impaired adults were selected on the basis of the following criteria:

- A. the presence of bilateral sensorineural hearing loss, including mild to moderate, and communication problems associated with speech reception or discrimination;

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- B. may or may not utilize amplification;
- C. identified as possessing a loss of hearing through an audiometric evaluation conducted by an audiologist;
- D. neither currently nor previously involved in formal or informal audiological rehabilitative program, other than hearing aid evaluation and hearing aid orientation;
- E. between 18 and 65 years of age.

Subjects were identified from the files of the Michigan State University Speech and Hearing Clinic and from a private, professional source. The subject group consisted of six males ranging in age from 27 to 62, with a mean age of 49 and a median age of 47.

### TEST MATERIALS

The following test materials were employed in this study:

*The Denver Scale of Communication Function* (Alpiner, Chevrette, Glascoe, Metz, Olsen, 1974) was employed in order to assess the attitudinal levels of each subject.

A 50-question multiple-choice test, pertaining to hearing loss and hearing impairment was designed by the investigators to assess the informational level of the subjects. The multiple-choice test was based on the information presented to the subjects and had two identical but scrambled forms (A and B). Face validity was determined by review of this instrument by three experts in the area of audiology. Reliability was demonstrated by administration of this test in a split halves format to six master's level students of audiology at Michigan State University, then re-administered in a scrambled form to the same six subjects to evaluate test-retest reliability. A rho co-efficient of correlation of .87 was established denoting a high to very high relationship (Garrett, 1964).

A concentrated educational program designed by the investigators, consisted of the following topics:

- 1) basic physics of sound;
- 2) function of hearing, including its place in the communicative process;
- 3) basics of audiology;
- 4) anatomy and physiology, including neuroanatomy and neurophysiology of the hearing mechanism;
- 5) overview of pathologies of the hearing mechanism;
- 6) effects of hearing on speech intelligibility

- 6) effects of hearing on speech intelligibility and production;
- 7) amplification systems and devices;
- 8) hearing conservation;
- 9) effects of hearing/hearing impairment on self-concept and social adjustment; and
- 10) rehabilitation options available to the hearing impaired individual.

### PROCEDURES

Attitudinal and informational levels of each subject were assessed individually one week prior to participating in the concentrated educational program. Attitudes were assessed with the *Denver Scale of Communication Function*. Informational levels were assessed with the multiple choice test designed by the investigators.

Before starting the program, the subjects were informed that it was hoped that the information presented would assist each of them in gaining knowledge of hearing and hearing impairment. They were informed that a lecture format would be employed and all that was required of them was to listen without taking notes.

One week after completion of the preassessment tasks, the subjects participated in the concentrated educational program. This program consisted of four, one and one-half hour group sessions, presented twice a week for two weeks. Topics were presented as follows:

#### Session I

1. Basic physics of sound
2. The function of hearing, including its place in the communication process
3. Basics of audiology

#### Session II

1. Anatomy and physiology, including neuro-anatomy and neurophysiology of the hearing mechanism
2. Overview of the pathologies of the hearing mechanism

#### Session III

1. Effects of hearing on speech intelligibility and production
2. Amplification systems and devices

#### Session IV

1. Hearing conservation
2. Effects of hearing on self-concept and social adjustment
3. Rehabilitation options available to the hearing impaired individual

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Upon completion of the program, attitudinal and informational levels were assessed again utilizing the same procedures employed in the pre-program assessment.

### RESULTS AND DISCUSSION

Two basic questions to be answered were as follows:

- 1) Were changes in the information level demonstrated as a result of participation in the concentrated educational program?
- 2) Were changes demonstrated in attitudinal levels toward hearing loss?

**TABLE 1**  
Pre- and Post-Information Test Scores

Pre - Post	Means	t	df	Level
A and B	24 and 37	4.960	5	.005 percent

\*A *t* of 4.032 is required at the .005 percent level.

Inspection of the pre- and post-test of information results showed a 26 percent overall increase in correct answers and the *t*-test for related measures showed the differences in pre- and post-test scores to be significantly different. (See Table 1).

Comparison of the pre- and post-program administration of the *Denver Scale of Communication Function* results showed changes in attitude for all subjects. The Signed Ranks Test was applied to the pre- and post-scores for thirteen of the twenty-five questions. These were found to be significantly different ( $P < .05$ ) and are presented in Table 2.

**TABLE 2**  
Results of Wilcoxon Signed-Ranks Test per Question of the Denver Scale of Communication Function

Question	Sum of Ranks (T)	-Z	P	Level of Significance
1	0	-1.60	.1051	.05
2	0	-1.82	.0647	.05
3	0	-1.60	.1051	.05
4	0	-1.60	.1051	.05
5	0	-1.34	.1766	.05
7	2	-1.82	.0647	.05
8	0	-1.34	.1766	.05
10	2	-1.00	.3186	.05
13	0	-1.00	.3186	.05
15	0	-1.82	.0647	.05
17	0	-1.34	.1766	.05
20	0	-1.34	.1766	.05
25	0	-1.82	.0647	.05

Changes in attitudinal level for the *Denver Scale of Communication Function* were found to be significant for questions 1 - 4, pertaining to the area of *Family* and for questions 5, 7, and 8, pertaining to *Self*. Questions 10, 13, 15, 17, and 20, were focused upon the area of *Social-Vocational* questions and demonstrated statistically significant changes. On question 25 dealing with *Communication* there was a statistically significant pre-post difference.

Although only one question in the area of *Communication* demonstrated significant change of attitude, it is important to note that statements 21-24 are stated as negatives and subjects generally agreed with these statements in the pre-program assessment. Differences post-program were not anticipated, since it was not expected that the information program would change attitudes towards the negative. Although pre-post changes for questions 21-24 were not statistically significant, the findings confirmed anticipated results.

The analysis of the *Denver Scale of Communication Function* findings demonstrates that the most frequent attitudinal changes occurred in the *Social-Vocational*.

The results of this study indicate a relationship between information levels of hearing impaired adults and attitudes they hold toward their hearing losses. This has raised other questions for future examination. A number of variables involving informational and attitudinal factors should be considered for future investigation to include the employment of additional attitudinal assessment instruments, group versus individual sessions, and family participation in counseling programs.

### SUMMARY AND CONCLUSIONS

The problem under investigation was to determine the extent to which information concerning hearing and hearing impairment in hearing impaired adults affects their attitudes toward hearing impairment. A related question was raised as to the possibility of changing the attitudes of hearing impaired adults by increasing their information levels.

The six hearing impaired male subjects had not been involved previously in any type of audiological rehabilitation program, including educational counseling (other than hearing aid orientation). A concentrated educational program was administered to the subjects as a

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group, after each had completed a multiple-choice test of knowledge pertaining to hearing and hearing loss and the *Denver Scale of Communication Function*. The same instruments were administered upon completion of the concentrated educational program. Results demonstrated that significant changes in the informational level occurred upon completion of the educational program. Also, changes in attitudinal level, as measured by changes in response to questions on the *Denver Scale of Communication Function* demonstrated statistically significant changes in attitudes for thirteen of the twenty-five questions appearing on the Denver scale.

On the basis of the results derived from this study, the following conclusions appear to be

in order:

1) Informational levels of hearing impaired adults concerning hearing and hearing impairment can be significantly improved by participating in a short-term concentrated educational program.

2) Significant improvement in attitudes of hearing impaired adults toward hearing impairment occurs as a result of their participation in short-term, concentrated educational programs.

This study suggests the need for further investigation into the development of informational and affective counseling of hearing impaired individuals as related to improvement in family relations and attitudes toward interpersonal communication.

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