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**The Effects of Group-Based Psychosocial Therapy on
Conversational Fluency and Communication Handicap**

by

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**An independent study submitted in partial fulfillment of
the requirements for the degree of**

Master of Science in Speech and Hearing

Emphasis in Audiology

**Washington University
Department of Speech and Hearing**

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INTRODUCTION

Cochlear implants have opened up a whole new world for those with severe to profound hearing loss. The success with cochlear implants has been incredible over the years. With the improved technology of multichannel cochlear implants, many postlingually deafened adults have the potential to understand speech without the use of speech reading (Gantz, Tyler, Knutson et al., 1988).

Although a cochlear implant user may do well with speech perception tasks, there may still be problems with the psychosocial adaptations to their deafness. A number of researchers have demonstrated that adventitious deafness may trigger adverse psychosocial consequences. For example, according to Thomas (1984), those with acquired hearing loss are four times more likely to exhibit psychological disturbances than the general population. Knutson and Lansing (1990) reported that those who do not use effective communication strategies have a greater level of psychosocial distress. Participation in rehabilitation and the use of a cochlear implant do not guarantee that the psychological problems associated with the hearing loss will go away. In fact, these feelings have been shown to stay there (Hogan, 2001).

Traditional rehabilitation has been limited in that most of the focus is specifically placed on communication strategies and technology. However, these approaches neglect the psychosocial adjustment to a disability, in this case the hearing loss. The participants need to go through the process where they can eventually acknowledge that despite their deafness, they are the same person; they just have to experience life differently.

The Canadian Psychosocial Therapy Program

Getty and Hetu (1991) designed a group rehabilitation program in Canada for workers affected with occupational hearing loss. The aim of the therapy was to initiate problem solving skills among the workers who do not actively seek to solve their listening and communication problems. Three goals of the program were to 1) provide psychosocial support for the workers to better deal with the effects of the hearing loss, 2) allow the workers to understand the nature and consequences of the hearing loss, and 3) develop new skills that would help them cope with the effects of the hearing loss. This program turned out to be very successful. The workers judged their hearing impairment to be less severe after intervention. Although they were more conscious of their hearing problems, they were more confident in dealing with them. The participants made various attempts to improve their situation by disclosing their hearing impairment to others, making requests to communication partners in order to facilitate communication, and some purchased devices to ease communication (Getty and Hetu, 1991).

The CID/Washington University Psychosocial Aural Rehabilitation Program

Since this group rehabilitation program was so successful, CID/Washington University decided to try a similar program with a group of cochlear implant users. The group therapy was based on Getty and Hetu's (1991) design and it also incorporates the psychosocial therapy program designed by Anthony Hogan (2002). Their approach focuses on developing a "new sense of the old self" where the person is able to effectively use strategies to live life as closely to the way one wants to live it as possible, while incorporating the changes needed for one with hearing loss (Hogan, 2001). Without intervention, it may take more than ten years for a hearing impaired person to go through the adjustment process (Hogan, 1998).

The psychosocial group intervention concentrated on the reasons the hearing impaired population tended to have a passive attitude and lacked usage of specific repair strategies. Aggressiveness and the usage of specific repair strategies are essential for effective communication (Binzer and Mauze, in preparation). According to Binzer and Mauze (personal communication), the goals of the group were to 1) help the participants identify which communication style they had a tendency to use, 2) assess the functional and emotional consequences of this style choice, 3) come to terms with and realize why they are not using communication strategies more frequently, and 4) allow them to increase their knowledge of effective communication strategies and use them consistently. This group was designed with the intention to increase the support needed to make the necessary changes to accept their hearing loss, while continuing to live life the way that they want to.

During the group therapy, the participants shared their feelings about their hearing loss and cochlear implants. The groups then made collages that symbolized how they see themselves, how others see them, and how they want to be seen. The group talked about the problems that they face with their hearing loss. They then brainstormed ways that they could alleviate these problems and chose one option to try it. The group role-played different situations that would help prepare them in being more assertive. The feedback after the session was positive. Many expressed that they now felt "empowered" and ready to take responsibility for themselves. They enjoyed sharing their experiences with others who were in the same situation with them. They felt that being involved in a group made all of the difference. They were able to experiment with the strategies with other people who understood their situation.

Purpose

The purpose of this study was to determine whether a combination of group rehabilitation in conjunction with psychosocial therapy would enhance conversational fluency and diminish communication handicap. *Conversational fluency* refers to how smoothly a conversation goes. There are three factors that define conversational fluency: the time spent in repairing conversational breakdowns, exchange of information or ideas, and the sharing of speaking time (Tye-Murray, 1998). In this study, conversational fluency is expressed by the percent of time spent in communication breakdown as analyzed through the Dyalog program. The Dyalog software program was developed by Norman Erber (1998) in order to provide an objective way to measure conversational fluency. This software can analyze functional communicative performance and note the changes that occur throughout the course of therapy.

The personal adjustment scales of the Communication Profile of Hearing Impaired (CPHI) index are representative of communication handicap. *Communication handicap* is the amount of psychosocial disadvantage that results from a person's hearing loss (Tye-Murray, 1998). In other words, it is how much the hearing loss affects the functioning of the person. This subjective measurement depicts how the cochlear implant user perceives his/her communication handicap. This inventory embodies the concept of the psychosocial approach to therapy. This scale allows the users to rate how far they have come in the process of accepting their hearing loss. The CPHI has been found to correlate well with psychological problems (Knutson and Lansing, 1990). Knutson and Lansing concluded that personal accommodations and strategies are probably the most important aspect in rehabilitation. These skills will help to lessen the emotional difficulties of the hearing impaired and may help them adapt to their environment.

METHODS

Participants

Twenty-five adult cochlear implant users participated in this study. The implant users were eleven men and fourteen women ranging in age from 38-78 years old with a mean age of 60 (SD = 13). Duration of implant use ranged from 1-15 years with a mean of 5.1 (SD = 4.5). All of the subjects used either the Nucleus 22 or 24 Cochlear Implant System or the Clarion device. The subjects used an oral/aural means of communication. All but one of the subjects participated in individual communication training after their initial stimulation.

Procedure

The program consisted of a six-hour long session for two consecutive days, followed by a half-day follow-up one month later. At these sessions, the group received the psychosocial therapy program discussed previously.

The cochlear implant users were instructed to complete the Communication Profile for Hearing Impaired (CPHI) personal adjustment scales (Demorest and Erdman, 1987). The self-assessment scale was administered pre-therapy, three, six, and twelve months post therapy. The CPHI personal adjustment scales evaluated the subject's coping mechanisms. In completing the CPHI, the subject answered questions according to a five point rating scale. The scores ranged from 1.0 to 5.0 with lower scores representing greater difficulty (some scales are reversed for scoring). The measured scales include self-acceptance, acceptance of loss, anger, displacement of responsibility, exaggeration of responsibility, discouragement, stress, withdrawal, and denial. The personal adjustment scales are designed to evaluate several affective features of the participant's acceptance of their hearing loss. This scale was chosen since it acts as a general representation of psychological distress as perceived by the cochlear implant user.

A ten-minute recording was videotaped between the cochlear implant recipient and an unfamiliar speaker at baseline, three months, six months, and twelve months post therapy. There were four unfamiliar speakers that were each spoken to one time for each participant. The unfamiliar speakers were all audiologists who were informed not to utilize any strategies that would ease the flow of the conversation. Only auditory cues could be used in this conversation so the unfamiliar speaker covered his/her entire face with a screen. Four-talker background babble was played through a tape recorder throughout the conversation.

Data analysis

The conversations were analyzed using a computer-based program called Dyalog, developed by Norman Erber. This program allows the clinician to objectively measure conversational fluency of the ten-minute conversation with the unfamiliar speaker. Various aspects of the conversation such as percent time spent in conversation breakdown, participant talk time, unfamiliar talk time, number of specific strategies used, and number of nonspecific strategies used were analyzed. These scales were used to measure functional communicative performance.

The measurement of percent time spent in conversational breakdown was collected at baseline, three months, six months, and twelve months after group intervention. The mean scores for the group were analyzed over time using repeated measures ANOVA. Statistical significance was determined by a p value $> .05$.

The CPHI personal adjustment scales were compared at baseline, three months, six months, and twelve months post intervention. The mean scores for each group were compared using repeated measures ANOVA. Statistically significant differences were noted with p values $< .05$.

RESULTS

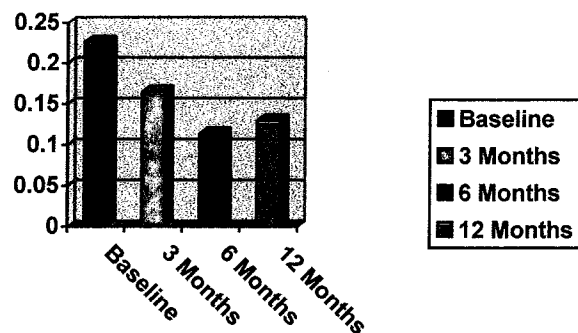


Figure 1: Percent time spent in Communication Breakdown*

Figure 1 shows the percent of time that was spent in conversational breakdown as measured by Dyalog. This measure represents an objective measurement of conversational fluency. There was a statistically significant change ($F = 4.4$, $p = .0075$) in the time throughout the one-year study. At baseline, the subjects spent an average of 23% of their communication time having trouble understanding the conversation. This indicates that there is a need for intervention since their conversation is very disfluent. Three months after group therapy, the subjects spent 17% of the conversation breaking down. The least amount of breakdown was noted at six months after therapy, where they spent only 11% of the conversation in breakdown. There was slight increase in breakdown time after 12 months, where they spent 13% of the conversation having difficulties.

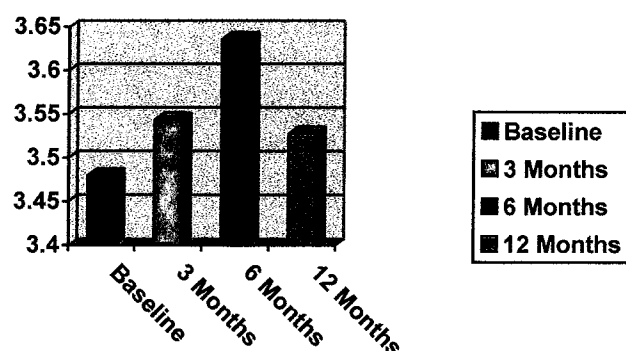


Figure 2: Self-Acceptance

Figure 2 represents the levels of self-acceptance that were recorded from the CPHI. A low score on this scale indicates that the subject's self-acceptance is very low and that the person may have troubles that need to be addressed. At baseline, the subjects, on average, scored a 3.48, which shows that the group as a whole was somewhat accepting that they are hearing impaired. This indicates that intervention is needed to increase levels of self-acceptance. After group therapy, there was trend that showed an increase in self-acceptance levels from baseline to six months and then a decrease in levels from six months to twelve months. However, the changes were not statistically significant in this category ($F = .51, p = .67$).

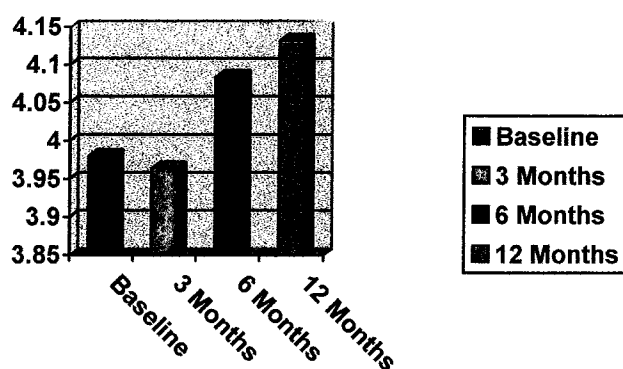


Figure 3: Acceptance of Loss

Figure 3 represents the scale of acceptance of loss on the CPHI. A low score on acceptance of loss indicates that the subject has trouble accepting the fact that he/she has a hearing loss. He/she may attempt to hide their hearing loss and also may have trouble admitting it to others. At baseline, the subjects scored an average of 3.98. This indicates that group has a pretty strong acceptance of their hearing loss. There were no significant changes over time for acceptance of loss ($F = .18, p = .15$). However, there was a trend of greater acceptance of loss over the twelve-month period.

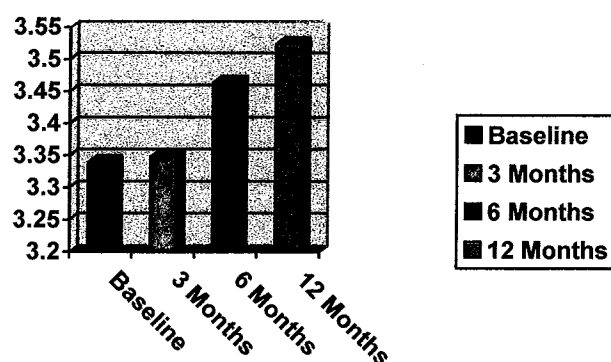


Figure 4: Decreases in Anger Level

In figure 4, lower scores indicate greater difficulty with anger and frustration with respect to communication difficulties that result from the hearing loss. At baseline, the subjects scored an average of 3.34. This shows that the group has not fully overcome the feelings of anger. This indicates that rehabilitation may be beneficial for this group. Although there was a trend that showed a decrease in anger levels over time, the change was not significant ($F = 1.61, p = .19$).

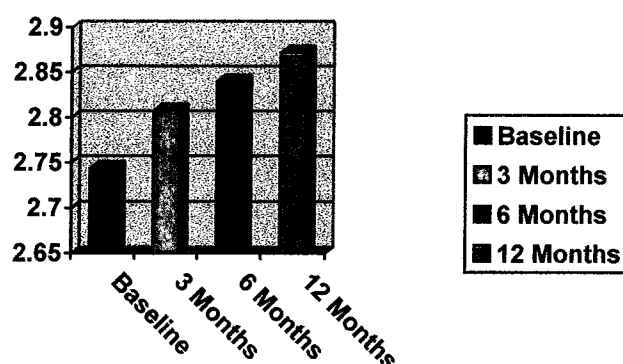


Figure 5: Decreases in Displacement of Responsibility

Figure 5 shows the displacement of responsibility of the hearing loss onto others. A lower score indicates the individual's need to blame others for the responsibility of their problems in communication. The subject denies responsibility and is quick to blame others for his/her problems. At baseline, the group scored an average of 2.74, which shows a mild tendency to place the blame on others for their hearing impairment. There was a decreasing trend in displacement of responsibility over the course of the year. However, this trend was not significant ($F = .53$, $p = .66$).

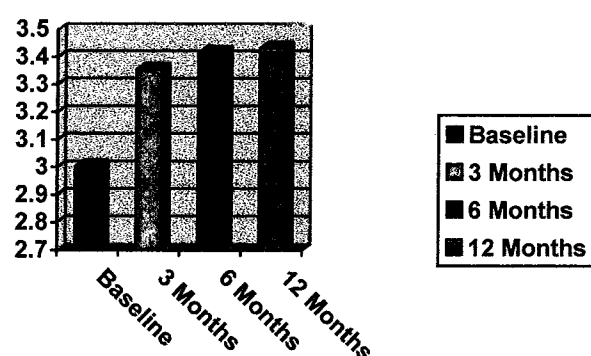


Figure 6: Decreases in Exaggeration of Responsibility*

Figure 6 shows the levels of exaggeration of responsibility on the CPHI. A lower score represents the subject's exaggerated sense of responsibility for effective communication. The

subject has an adverse reaction to asking others for help. At baseline, the subjects scored an average of 3.0. This shows that the subjects were somewhat in the middle for exaggerating their responsibility for their hearing loss. There shows that there is some room for improvement.

There was a significant improvement over the course of the year ($F = 4.93$, $p = .004$).

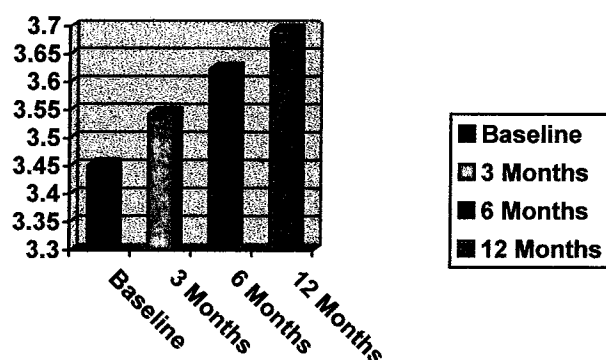


Figure 7: Decreases in Level of Discouragement*

Figure 7 shows the discouragement levels from the CPHI. A low score on this scale depicts feelings of depression and discouragement that are attributed to the hearing loss and communication problems that are a result of the hearing loss. At baseline, the subjects scored an average of 3.45 on the CPHI. This shows that the subjects were still somewhat discouraged. There was a significant amount of improvement ($F = 3.17$, $p = .03$) after therapy with the least amount of discouragement after one year.

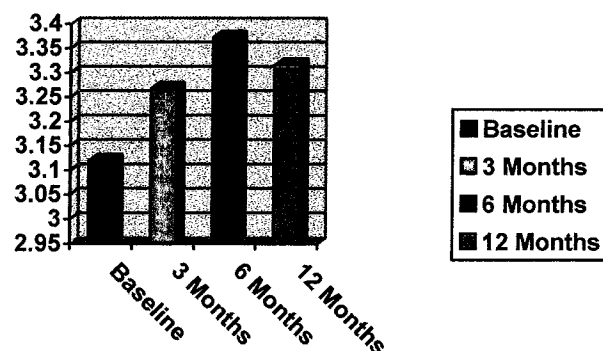


Figure 8: Decreases in Stress Levels

Figure 8 shows the stress levels over time. The stress scale looks at anxiety, fears, worries, and strain that are experienced by the subject. A low score on this scale indicates greater levels of stress. This apprehension results from either the anticipation of communication problems or it is concurrent with them. At baseline, the subjects scored an average score of 3.45. This shows that the subjects were either uncertain about being stressed or disagreed with being stressed on the survey. There was a trend that showed an improvement over time, however, the levels just failed to reach significance ($F = 2.61$, $p = .058$).

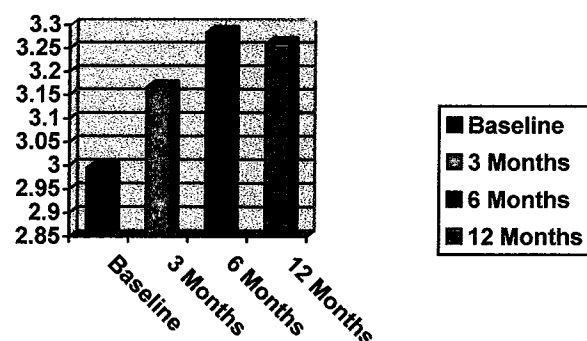


Figure 9: Decreases in Withdrawal*

Figure 9 shows the level of withdrawal over time. A low score of the withdrawal scale reflects a tendency to withdraw from social interactions and thus feel isolated in difficult communication situations. At baseline, the subjects scored a 2.99. This score reflects that the subjects withdrew from conversations about half of the time. There was a significant decrease in withdrawal over time ($F = 3.47, p = .02$) with the least amount of withdrawal shown at six-months after therapy.

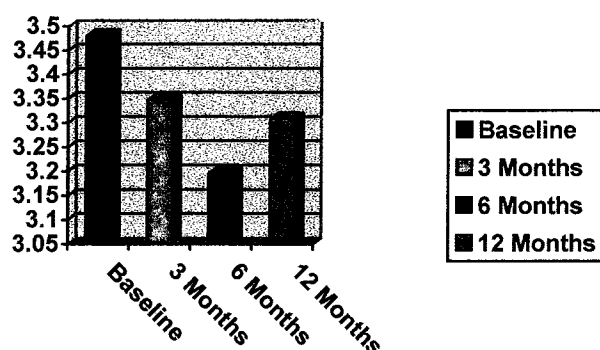


Figure 10: Levels of Denial

Figure 10 shows the levels of denial from the CPHI. A higher score reflects a tendency to deny typical reactions to communication difficulties. At baseline, the subjects scored an average of 3.48 on the CPHI. This shows that there was a tendency to be in denial some of the time about their hearing loss. There were no significant changes ($F = 2.3, p = .08$) in the levels of denial over time.

DISCUSSION

Hearing loss can greatly affect one's ability to communicate with others. This can lead to many psychosocial implications. After at least one year of usage of a cochlear implant, these subjects were still having difficulties adjusting to and accepting their hearing loss. This is

evident by their scores at baseline on the CPHI personal adjustment scales and also by the percent of time spent in conversation breakdown as coded by Dyalog. Aural rehabilitation was necessary for this group of cochlear implant users.

As a result of group-based therapy, the conversational fluency of a group of cochlear implant users significantly increased over the course of one year. This measurement was recorded by examining the objective measurement of percent of time spent in conversation breakdown using Erber's Dyalog software.

This improvement in fluency co-occurred with decreases in the subjective scores of perceived communication handicap. Communication handicap was represented in this study by the subject's scores on the Personal Adjustment scale of the CPHI. The most significant improvements were seen in the areas of Exaggeration of Responsibility, Discouragement, and Withdrawal. Although these were the scales that showed significant improvement, all of the scales did have some improvement as compared to baseline measures.

Improvements in the subscale of Exaggeration of Responsibility show that the subjects have an easier time asking others to help them if they are having trouble communicating. They are not placing all of the responsibility of the hearing loss on themselves. Improvements in Discouragement show that the subjects are feeling less discouraged and depressed as a result of their hearing loss. Improvements in the Withdrawal subscale indicate that the subjects are interacting more in social situations and are not isolating themselves as much as before because of the hearing loss.

Even though a cochlear implant user may do very well in speech perception tasks, there still may be many underlying psychosocial issues with hearing loss. Rehabilitation alone will not be able to conquer these problems. Psychosocial therapy in conjunction with rehabilitation

has shown tremendous improvements in conversational fluency and communication handicap. Group-based psychosocial therapy would be beneficial to incorporate into cochlear implant rehabilitation programs in the future.

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