

2003

Comparing cochlear implant users' and their partners' subjective assessment of verbal strategy use with objective assessment: does this change following psychosocial therapy?

Margaret Basile

Follow this and additional works at: http://digitalcommons.wustl.edu/pacs_capstones



Part of the [Medicine and Health Sciences Commons](#)

Recommended Citation

Basile, Margaret, "Comparing cochlear implant users' and their partners' subjective assessment of verbal strategy use with objective assessment: does this change following psychosocial therapy?" (2003). *Independent Studies and Capstones*. Paper 175. Program in Audiology and Communication Sciences, Washington University School of Medicine.
http://digitalcommons.wustl.edu/pacs_capstones/175

This Thesis is brought to you for free and open access by the Program in Audiology and Communication Sciences at Digital Commons@Becker. It has been accepted for inclusion in Independent Studies and Capstones by an authorized administrator of Digital Commons@Becker. For more information, please contact engeszer@wustl.edu.

**Comparing Cochlear Implant Users' and Their Partners' Subjective
Assessment of Verbal Strategy Use with Objective Assessment :
Does This Change Following Psychosocial Therapy?**

by

Margaret Basile

**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**

May 23, 2003

Approved by: Nancy Tye-Murray, Ph.D., Independent Study Advisor

ABSTRACT

This study investigates the effectiveness of a group-based psychosocial hearing rehabilitation program for cochlear implant patients and their frequent communication partners. The study addresses three of the following questions: (1) How well do the subjective impressions on the participant's verbal strategy use of the partner and users correspond at baseline and at six-months?, (2) How well do the subjective and objective measures correspond at baseline and at six-months?, and (3) Do the subjective and objective measures of verbal strategy use change following psychosocial therapy? A comparison of data gathered pre-psychosocial therapy was compared to the same measures at six-months post-therapy. Results indicate that there is no significant correlation at the pre-therapy baseline or six-months post-therapy between the patients' perception of their own verbal strategy use and their partners' perception of the patients' verbal strategy use. Results also indicate that there is no significant correlation at baseline and at six-months between the subjective and objective measures of verbal strategy use. Although not significant findings, the comparison between the patients' subjective verbal strategy use and the objective percent of specific repair strategy use in conversation did change from a negative correlation at baseline to a positive correlation at six-months. Another important result indicates a significant increase in the partner's perception of the patient's verbal strategy use following psychosocial therapy. However, the patient's did not show a significant increase in their perception of verbal strategy use.

INTRODUCTION

Although cochlear implant recipients report a dramatic increase in hearing ability, even the best implant users have difficulties in some conversational settings, such as

background noise or religious services (Knutson & Lansing, 1990). This difficulty can result in psychosocial consequences for the hearing impaired individual such as discouragement and withdrawal, which may ultimately lead to a passive communicator. Those who are frequent communication partners of individuals who incur a hearing loss often experience a change in life quality also. Feelings of annoyance, irritation, and tension may result from recurring misunderstands (Tye-Murray & Schum, 1994). The partner of a patient with hearing impairment may also have to assume extra burdens such as interpreting for the patient or answering the telephone on all occasions. A frequent communication partner must realize that some of the rules of conversation must be modified or adapted when conversing with the patient who is hearing impaired. Conversational training for the partner may alleviate some of the difficulties. This training fosters empathy, appropriate speaking behaviors, message tailoring, and the use of verbal repair strategies (Tye-Murray & Schum, 1994). It is important for a hearing impaired patient and their partner to actively facilitate ways to communicate successfully in order to maintain a good quality of life. Erber (1996) noted that spouses and frequent communication partners can contribute significantly to people with hearing losses' conversational success, so it is desirable that they participate in audiological rehabilitation programs.

Many studies have been conducted to study the effects of talker familiarity on communication in conversations with adult cochlear implant users (Tye-Murray et al., 1995; Hallberg & Barrenas, 1994). In a 1995 study, Tye-Murray et al. determined that cochlear implant users were more likely to use repair strategies if their communication partner was familiar rather than unfamiliar. It was also found that when cochlear implant

patients converse with an unfamiliar speaker, their use of fillers, interruptions and tendency to speak more words per turn might indicate that they were trying to exert more control over these conversations than conversations with their familiar communication partners (Tye-Murray et al., 1995).

Conversational fluency can be described as how smoothly conversation unfolds (Tye-Murray, 1998, pp. 51). The fluency of conversation can be considered high if the need for clarification is minimal. On the other hand, if numerous conversation breakdowns occur during a conversation and many interchanges between conversational partners are required, then the fluency of conversation is low. A main component of conversation is the exchange of information and ideas. If the conversation participants successfully and easily share ideas, then the conversational fluency is high. In order to achieve smooth-flowing conversation, it is important for it to be spontaneous and unhindered. It is also important for conversational participants to share speaking time without one person dominating. A fluent conversation should not have prolonged silences or frequent interruptions (Erber, 1996, pp. 204-205).

A communication breakdown occurs when an individual does not understand a spoken message and the fluency of a conversation is interrupted. During everyday conversations, people who are deaf or hard-of-hearing frequently experience communication breakdowns because they misperceive their conversation partners' spoken message. This challenge hinders the ability to carry on fluent conversations with others and may lead to deteriorations in the quality of personal interactions (Erber, 1996). When conversation breakdowns occur, people with hearing loss can use various conversational repair strategies to overcome it and resume conversational fluency.

Repair strategies include asking a partner to repeat the message, rephrase it, simplify it, give a keyword, or indicate the topic of the conversation. These strategies can be nonspecific (e.g. "What?") or specific (e.g. "Can you say that last word?"). Many audiological rehabilitation programs provide training in using conversational repair strategies. Much of this intervention relies on the idea that specific clarification requests are more effective than nonspecific requests (Caissie & Gibson, 1997). For example, paraphrasing or revising a misperceived message is a more effective strategy than simply repeating the original message (Erber, 1996; Gagne et al., 1991). Knutson and Lansing (1990) have shown that those individuals who use ineffective communication strategies are more likely to experience psychosocial distress. In a study in which hearing impaired individuals completed the Communication Profile for the Hearing Impaired (CPHI) questionnaire, Knutson and Lansing (1990) reported, "Inadequate communication strategies and poor accommodations to deafness reported on the CPHI were associated with depression, social introversion, loneliness, and social anxiety".

PURPOSE

Fourteen cochlear implant users and their partners participated in a group-based psychosocial hearing rehabilitation program. Objectives of the program include: 1) Identifying problematic communication settings, 2) Recognizing the impact of communication breakdown on self-esteem, 3) Recognizing communication related stress, 4) Practicing effective communication strategies, 5) Developing relaxation and assertiveness skills, and 6) Using technology/assistive devices effectively.

The purpose of this study is to evaluate the extent to which group-based

psychosocial hearing rehabilitation may reduce the time spent in communication breakdowns and enhance the verbal repair strategy communication skills of adults with cochlear implants and their partners. The study compares changes in objective Dialog data (pre-therapy baseline to six-months post-therapy) to a subset of the Communication Profile for the Hearing Impaired (CPHI) questionnaire regarding the partners' perception of the cochlear implant patients' verbal strategy use, as well as the patients' perception of their own strategy use, (pre-therapy baseline to six-months post-therapy). The study addressed three of the following questions: (1) How well do the subjective impressions on the participant's verbal strategy use of the partner and users correspond at baseline and at six-months?, (2) How well do the objective and subjective measures correspond at baseline and at six-months?, and (3) Do the objective and subjective measures of verbal strategy use change following psychosocial therapy? A comparison of data gathered pre-psychosocial therapy was compared to the same measures at six-months post-psychosocial therapy.

METHODS

Subjects

Fourteen cochlear implant patients and their partners participated in this study. A partner was defined as a live-in, non-blood related companion. Cochlear implant patients totaled fourteen with eight men and six women, ranging from ages 47-78, with a mean age of 62.7 (SD=11.73). Partners totaled fourteen with eight women and six men, ranging from ages 44-81, with a mean age of 61.7 (SD=13.1). All participants in the study were oral/aural communicators.

Test Material

The Communication Profile of the Hearing Impaired (CPHI)-Assessing Attitudes.

The CPHI is a 145-item self-assessment questionnaire designed to allow the clinician to identify a variety of factors in a quantitative manner. It assesses the areas of Communication Performance, Communication Environment, Communication Strategies and Personal Adjustment and the extent to which they are involved in a person's adjustment to hearing impairment. Scale scores range from 1.0 to 5.0, with lower scores representing greater difficulty (some scales are reversed for scoring). The CPHI was completed by both the patient and their partner at a baseline and a six-month interval. The questions were tailored in such a manner that they addressed both the patient and their partner regarding their perceptions of the cochlear implant users' verbal strategy use, e.g., (Addressed to patient: "If I don't understand repetitions, I ask again"; Addressed to partner: "If my partner doesn't understand repetitions, he/she asks again").

Videotaped Conversations Between Cochlear Implant User and their Partner- Assessing Communication Skills. A ten-minute conversation in the presence of four-talker babble was videotaped between the cochlear implant recipient and their partner/familiar speaker at a baseline and a six-month interval. Participants were informed that background noise would be present and that the partner would cover their face with a screen that would inhibit visual information yet allow the passage of auditory information. To allow for a more normal interaction the clinician left the room while the videotaping was taking place.

DYALOG: A Computer-Based Software Program. Dyalog, a computer-based software program, was used to objectively measure the patient's functional communication performance in the videotaped conversations between the patients and their partners (Erber, 1998). When the conversation flows smoothly, the clinician does nothing. However, when the conversation breaks down and repair is required, the clinician presses and holds down the space bar on the computer keyboard. A conversation breakdown was coded as occurring when the cochlear implant user either did not hear the communication partner's utterance and admitted to not hearing it or recognized the utterance incorrectly. At the end of the conversation, the program automatically displays a line graph that summarizes the clinician's analysis (Erber, 1998). The videotaped conversations were analyzed for the following: 1) number of communication breakdowns, 2) number of non-specific strategies, 3) and number of specific strategies.

PROCEDURE

For the purpose of this study, the CPHI questionnaire data of importance included the verbal repair strategies subset of the Communication Strategies scale. The verbal strategies subset contains eight items that describe adaptive strategies for coping with effects of hearing impairment on communication. It includes assertive behaviors such as asking someone for repetition, reminding others of hearing problems, and asking others for cooperation, (e.g. "When I think a person is speaking too softly, I ask them to speak up"). Each of the eight items in the verbal strategies subset is a type of specific repair strategy, rather than nonspecific. The data obtained from the CPHI were analyzed for both the patient and the spouse at a baseline and six-month interval.

The videotaped conversations between the patient and their partner were analyzed using the Dyalog computer-based program at a baseline and six-month interval. This study looked specifically at two main areas of interest contained in the Dyalog data. First, the percent of time spent in a communication breakdown was analyzed. Second, the percent of specific repair strategies (RS) used was analyzed, (specific RS/(specific RS + nonspecific RS)), as this best represented the information contained in the CPHI verbal strategies subset.

RESULTS

A Pearson correlation was performed in order to compare the patient's and the partner's subjective answers to the verbal strategies subset of the CPHI at baseline and six-months post-psychosocial therapy. Results indicate a non-significant correlation at both baseline, ($r=0.431$, $p>0.05$) (Figure 1) and at six-months post-psychosocial therapy, ($r=0.054$, $p>0.05$) (Figure 2). Two observations were missing from the six-month evaluation.

Four Pearson correlations were performed to address how well the objective and subjective measures correspond at baseline and at six-months. First, a comparison at baseline was performed between Dyalog data of the percent of time spent in a communication breakdown and the patient's verbal repair strategy use subset of the CPHI. Twelve observations were used in this computation; two cases were omitted due to missing values. Results indicate a non-significant correlation ($r=0.010$, $p>0.05$) (Figure 3). The same comparison was performed for six-month data. Results indicate a non-significant correlation ($r=0.049$, $p>0.05$) (Figure 4). Three observations were missing from the six-month evaluation.

Next, a comparison at baseline was performed between the Dyalog data percent of specific repair strategies and the patient's verbal strategy use subset of the CPHI. Results indicate a non-significant negative correlation ($r=-0.433$, $p>0.05$) (Figure 5). Two observations were missing from the baseline evaluation. The same comparison was then performed for six-month data. Eleven observations were used in this computation; three were omitted due to missing values. Results indicate a non-significant positive correlation ($r=0.442$, $p>0.05$) (Figure 6).

To address whether the subjective measures of verbal strategy use changed following psychosocial therapy, a comparison was performed of baseline and 6-month data regarding the verbal strategy subset of the CPHI. First, the group of patients was compared. Results indicate a slight, non-significant decrease ($p>0.05$) from baseline: (mean=3.7, SD=0.635) to six-months: mean=3.677, SD=0.849, (Figure 7). One observation was missing from this comparison. Next, the group of partners was compared between baseline and six-months. Results indicate a significant increase ($p<0.05$, $p=0.0262$,) from baseline: mean=2.975, SD=0.753 to six month: mean=3.650, SD=0.945, (Figure 8). Two observations were missing from this comparison. Partners' believed that the patient's use of verbal repair strategies significantly increased from baseline to six-months post-therapy, while the patients' did not believe to increase verbal repair strategy use.

To address whether the objective measures changed following psychosocial therapy, a comparison was performed of baseline and six-month data regarding the percent of time spent in a communication breakdown. Eleven observations were used in this computation; three cases were omitted due to missing values. Results indicate no

significant decrease ($p>0.05$) in the percent of time spent in a communication breakdown from baseline: mean=0.132, SD=0.119 to six-months: mean=0.124, SD=0.161, (Figure 9).

Another comparison was performed of baseline and six-month data regarding the percent of specific repair strategies used. Eleven observations were used in this computation; three cases were omitted due to missing values. Results indicate no significant increase ($p>0.05$) in the percent of specific repair strategies used from baseline: mean=0.388, SD=0.289 to six-months: mean=0.416, SD=0.399, (Figure 10).

DISCUSSION AND CONCLUSION

The two important findings of this study suggest that psychosocial therapy increased the patient's awareness of repair strategy use and the partner's perception of the patient's verbal strategy use. First, the comparison of the patient's CPHI verbal strategy use and the Dyalog percent of specific repair strategies used changed from a negative correlation at baseline to a positive correlation at six-months. This indicates that the patient's actual use of verbal strategies and their perception of use are more positively correlated following psychosocial therapy. This means that when the patient felt as though they were using more verbal strategies, they actually were. Although both comparisons indicate correlations that were not significant, it is important to note that the correlation changed from negative to positive at the six-month mark following psychosocial therapy. This may be a result of the patient's improved awareness of verbal strategies due to rehabilitation therapy.

Second, the comparison of the partner's perception of the patient's verbal strategy use resulted in a significant increase from baseline to six-months. The partners' believed that the patients' use of verbal repair strategies significantly increased, while the patient group did not believe to increase verbal repair strategy use. This difference in response on the CPHI between the patients' and partners' can be evaluated and used to develop conversation training objectives or to assess the effects of conversation training (Tye-Murray & Schum, 1994). In this instance, the patient and their partner disagree on how frequently the patient is using verbal repair strategies during communication. This may be a helpful finding in order to address and resolve the miscommunication through future psychosocial therapy. According to objective finding in Dyalog, the percent of specific repair strategies used by the patients' did not significantly increase and the percent of time spent in a communication breakdown did not significantly decrease from baseline to six-months. The significant increase in the patients' perception of the partners' verbal strategy use may be because the partners' developed more empathy and better awareness of the patient's verbal strategy use after participating in psychosocial group rehabilitation. It is probable that altered cognition and behavior by the couple reshaped the home to better facilitate communication, which probably explains the increase in the partners' perception of the patients' verbal strategy use (Hallberg & Barrenas, 1994).

FIGURE 1: The relationship between the patients' and frequent communication partners' responses to the verbal strategy subset on the CPHI, completed at baseline.

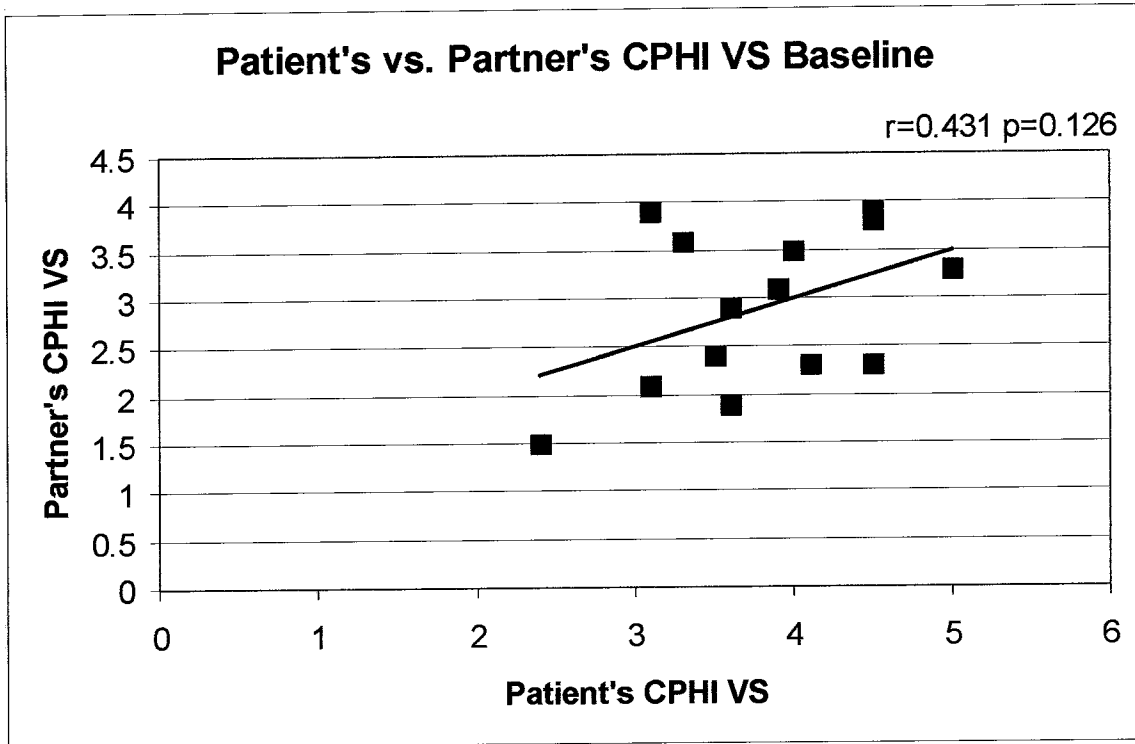


FIGURE 2: The relationship between the patients' and frequent communication partners' responses to the verbal strategy subset on the CPHI, completed at 6-months post-psychosocial therapy.

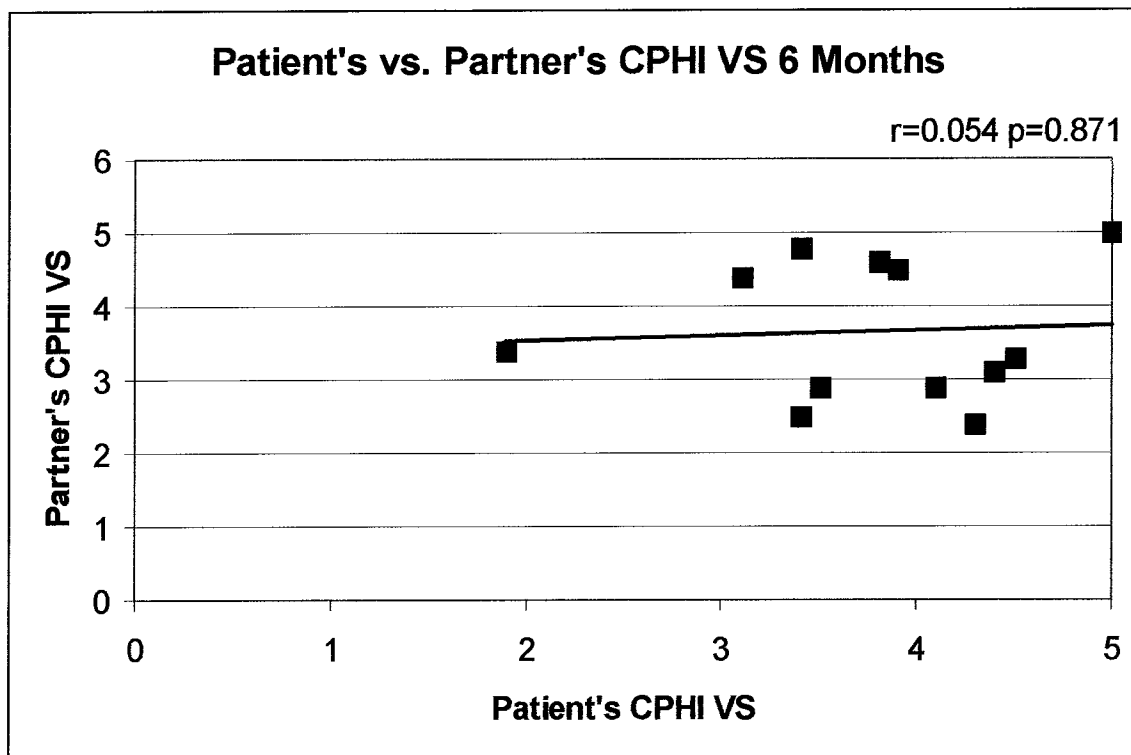


FIGURE 3: The relationship between the patient's responses to the verbal strategy subset on the CPHI and the percent of time spent in a communication breakdown during a conversation with their partner, completed at baseline.

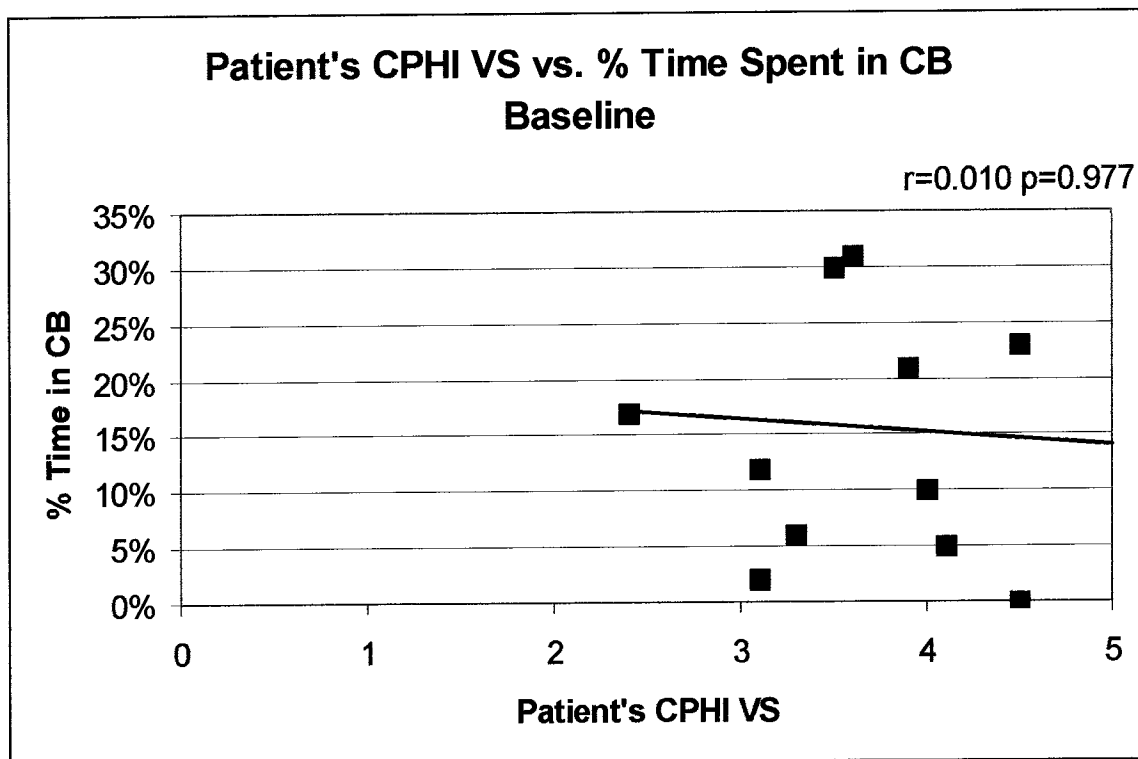


FIGURE 4: The relationship between the patient's responses to the verbal strategy subset on the CPHI and the percent of time spent in a communication breakdown during a conversation with their partner, completed at six-months post-psychosocial therapy.

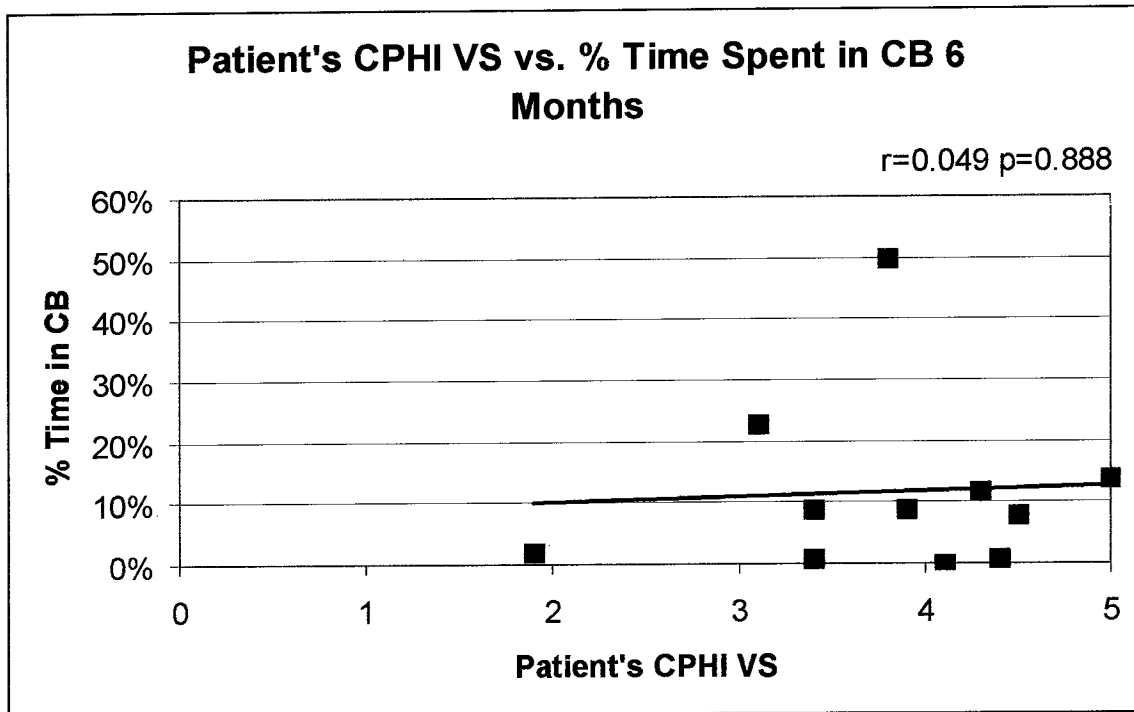


FIGURE 5: The relationship between the patients' response to the verbal strategy subset on the CPHI and the percent of specific repair strategies used during a conversation with their partner, completed at baseline.

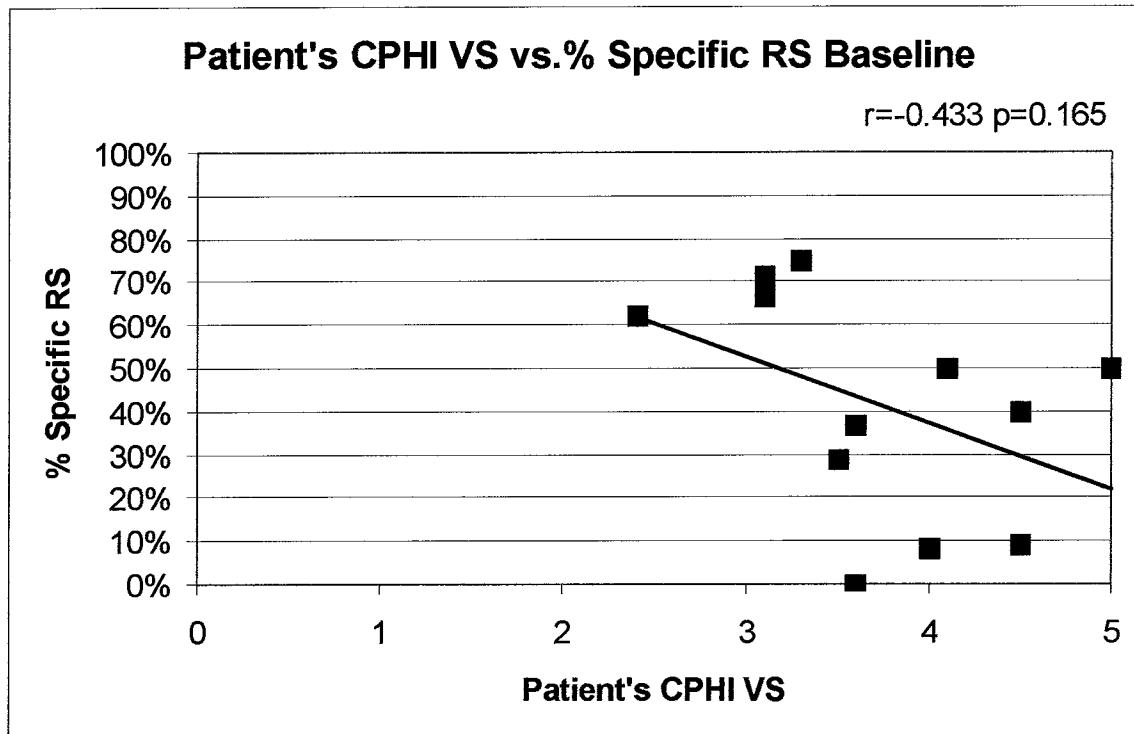


FIGURE 6: The relationship between the patients' response to the verbal strategy subset on the CPHI and the percent of specific repair strategies used during a conversation with their partner, completed at six-months post-psycho-social therapy.

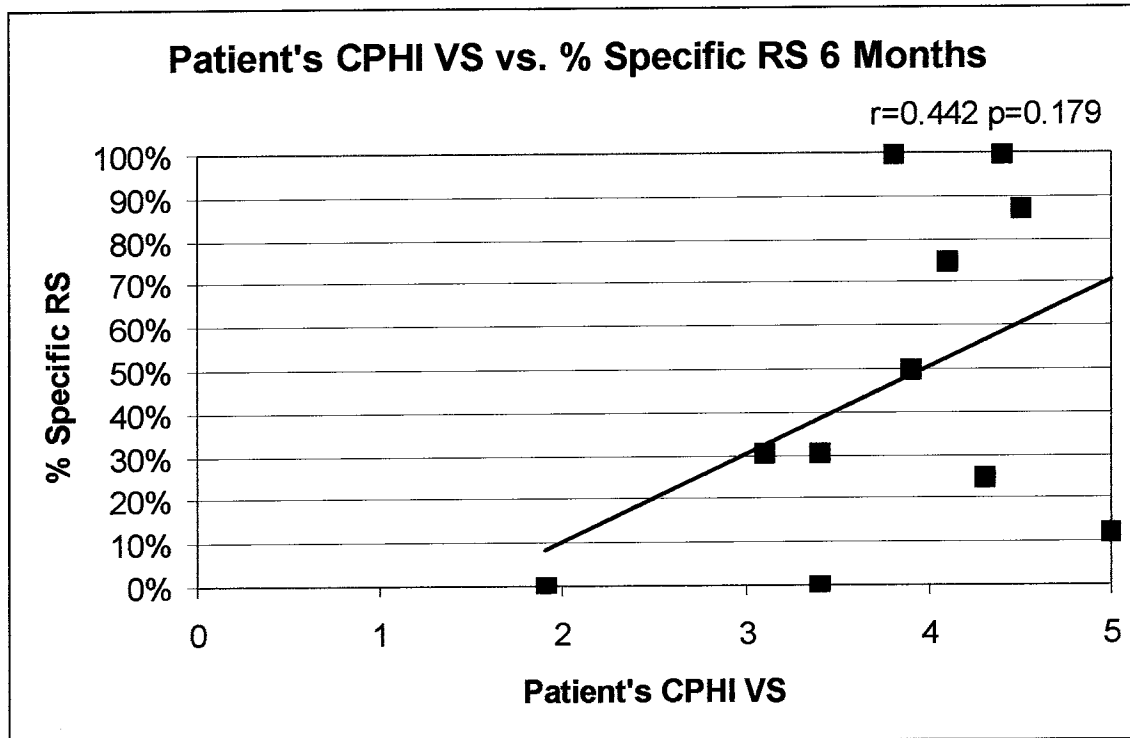


FIGURE 7: A comparison of baseline and six-month data regarding the patients' responses to the verbal strategy subset on the CPHI.

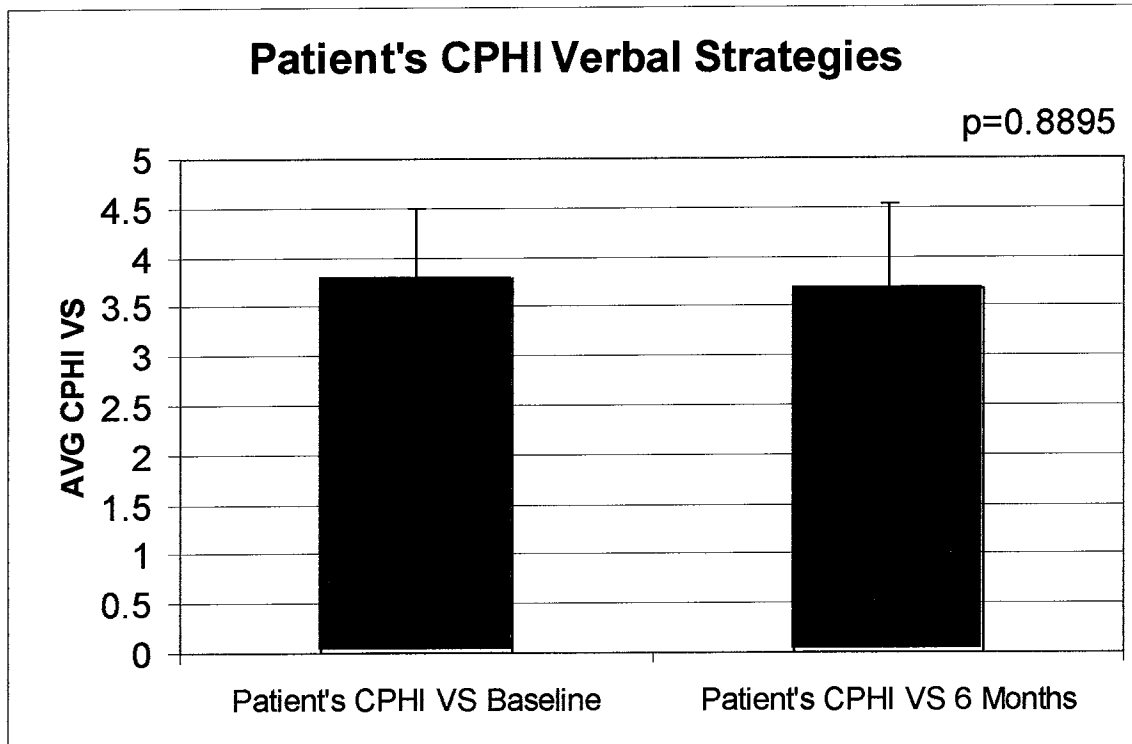


FIGURE 8: A comparison of baseline and six-month data regarding the partners' responses to the verbal strategy subset on the CPHI.

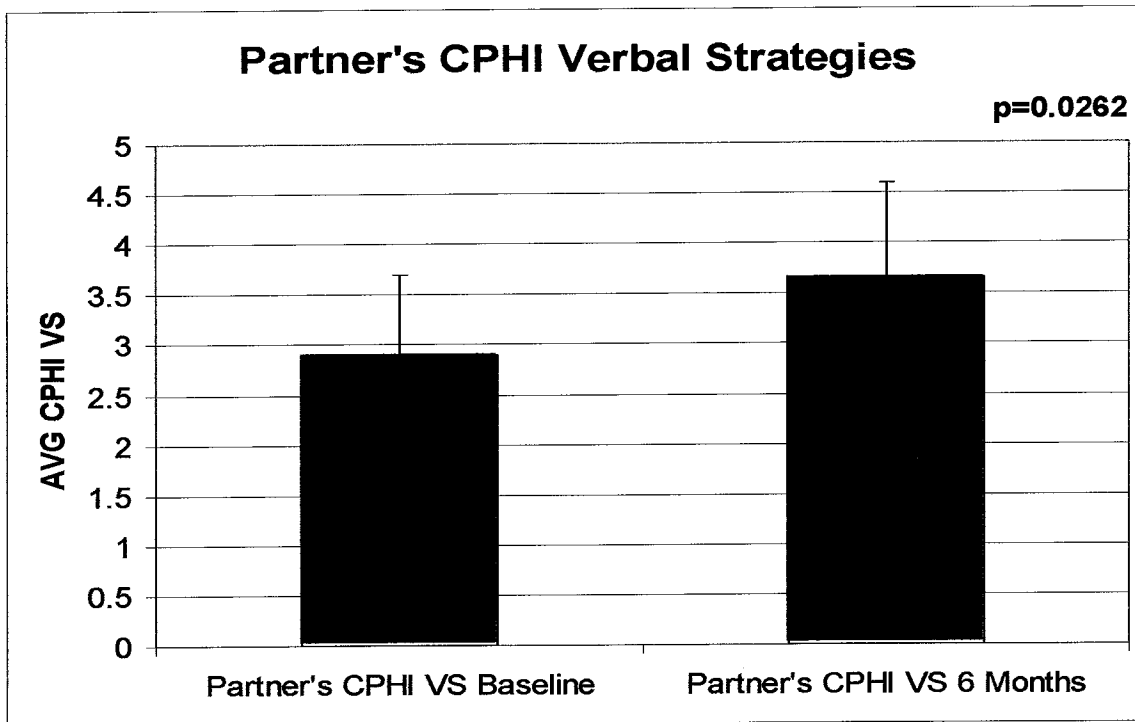


FIGURE 9: A comparison of baseline and six-month data regarding the percent of time spent in a communication breakdown during a conversation between the patients' and partners'.

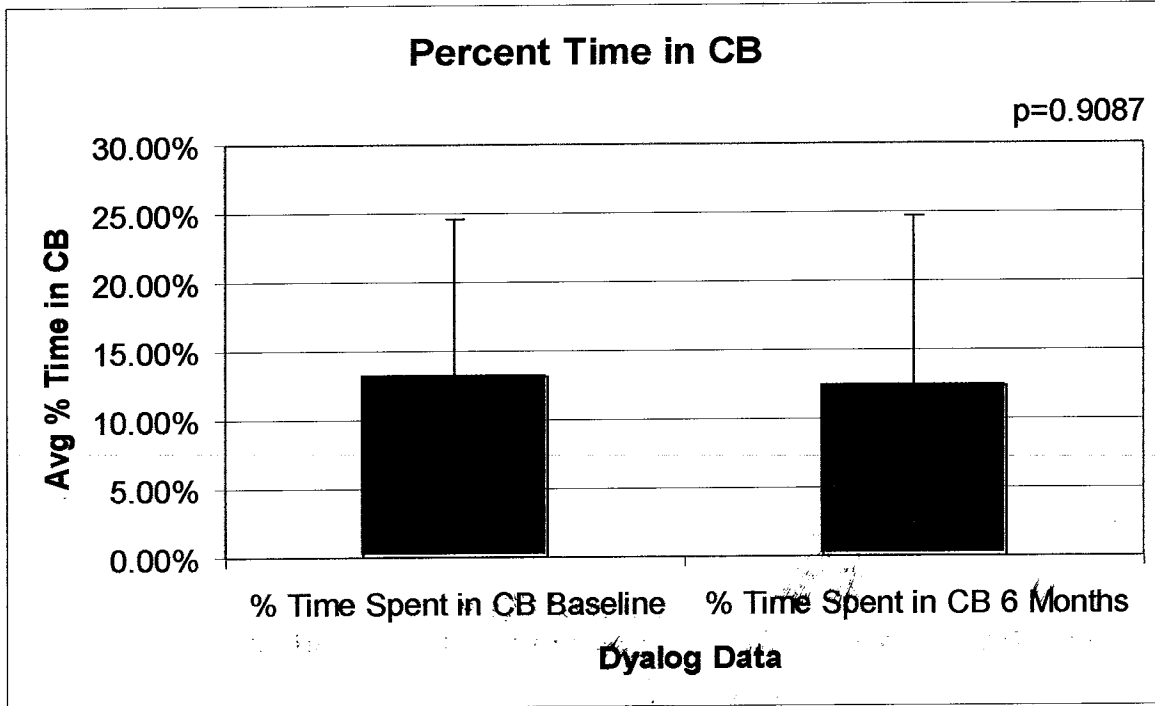
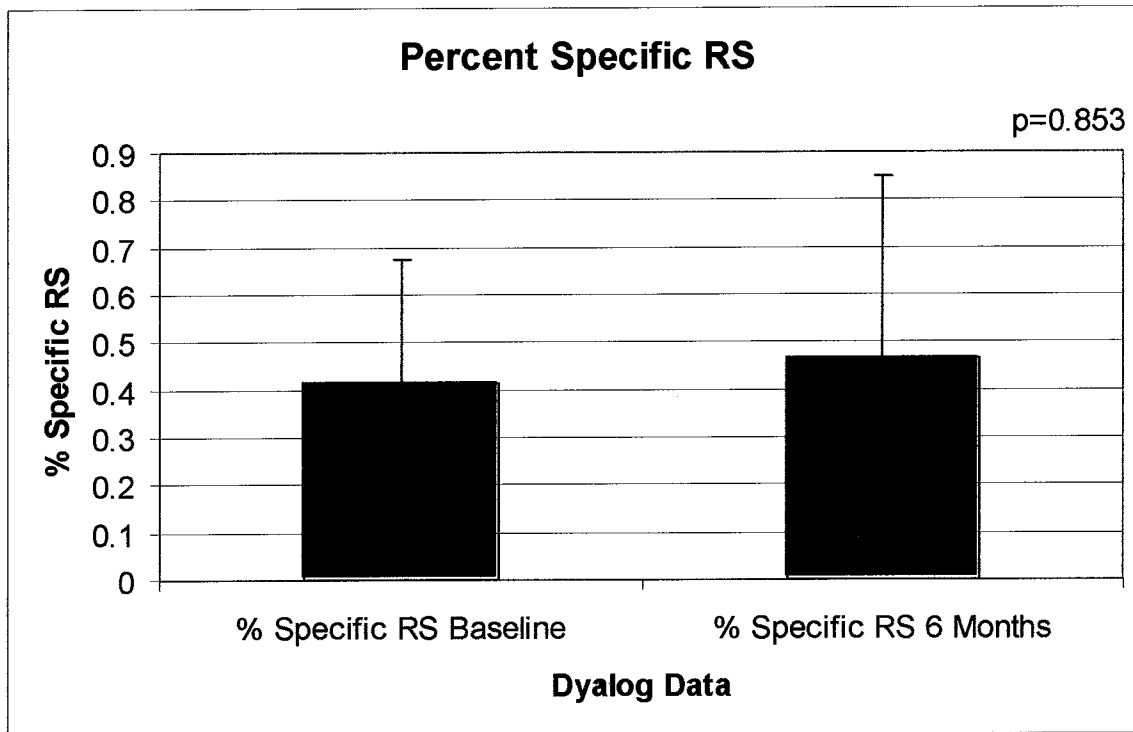


FIGURE 10: A comparison of baseline and six-month data regarding the percent of specific repair strategies used in a conversation between the patients' and partners'.



REFERENCES

- Caissie, R. & Gibson, C. (1997). The effectiveness of repair strategies used by people with hearing losses and their conversational partners. *Volta Review*, 99 (4): 203-218.
- Erber, N. (1996). *Communication therapy for adults with sensory loss*. Melbourne, Australia: Clavis.
- Erber, N. (1998). Dyalog: A Computer-based measure of conversational performance. *Journal of the Academy of Rehabilitative Audiology*, 31: 39-76.
- Erdman, SA & Demorest, ME. (1990). *CPHI Manual: A guide to clinical use*. Simpsonville, MD, CPHI Services.
- Gagne, J.-P., Stelmacovich, P., & Yovetich, W. (1991). Reactions to requests for clarification used by hearing-impaired individuals. *Volta Review*, 93: 129-143.
- Hallberg, L.R.M. & Barrenas, M.L. (1994). Group rehabilitation of middle-aged males with noise-induced hearing loss and their spouses: Evaluation of short- and long-term effects. *British Journal of Audiology*, 28: 71-79.
- Knutson, JF; Lansing, C. (1990). The relationship between communication problems and psychological difficulties in persons with profound acquired hearing loss. *Journal of Speech and Hearing Disorders*, 55: 656-664.
- Tye-Murray, N & Schum, L. (1994). Conversation training for frequent communication partners. *Journal of the Academy of Rehabilitative Audiology Supplement*, XXVII, 209-222.
- Tye-Murray, N; Witt, S; & Schum, L. (1995). Effects of talker familiarity on communication breakdown in conversations with adult cochlear implant users. *Ear and Hearing*, 16(5): 459-469.
- Tye-Murray, N. (1998). *Foundations of aural rehabilitation: Children, adults, and their family members*. San Diego: Singular Publishing Group, Inc.