

Audiologist Counseling Effectiveness Scale for the Elderly

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This report describes the conceptualization and development of the Audiologist Counseling Effectiveness Scale for the Elderly (ACES-E). This tool is designed to assess the effectiveness of counseling in the audiologic treatment of the elderly. Factor analysis performed on an initial inventory of items resulted in the identification of two factors: a 13-item subscale evaluating the counseling effectiveness of the audiologist in the Emotional domain and a 13-item subscale assessing how effectively the audiologist conveys Informational content. Internal consistency reliability of the ACES-E was reflected by Cronbach's alphas ranging from .89 for the Informational factor to .93 for the entire factored inventory. Split-half reliabilities were equally high. Possible uses of the ACES-E are described and suggestions for future research to investigate the validity of the scale are offered.

Counseling patients with communication disorders is an essential component of diagnostic and therapeutic procedures (Erdman, 1993; McCarthy, Culpepper, & Lucks, 1986). An individual's response to hearing impairment and aural rehabilitation programs is affected by a variety of factors, including personality, general health, financial capabilities, age, and reactions by family, friends, and care-givers (Taylor, 1991; Ventry & Weinstein, 1982).

Schum (1986) argues cogently that clinicians provide two major services through counseling: identifying communication problems (diagnosis) and remediating them (treatment). Counseling involves audiologist support of patients through two main components: informational counseling and emotional counseling (Pollack, 1978; Sanders, 1975). Informational counseling provides patients with an understanding of hearing loss, its consequences, and the role of amplification in remediating hearing loss. Assisting patients in finding a personal solution to the problem, coping with annoyances and disappointments, and achieving personal acceptance of the hearing loss situation have been labeled as personal-adjustment counseling by Sanders and affective counseling by Pollack. Implementing effective counseling methods in rehabilitative audiology has been complicated by the fact that predictions cannot be made as to how patients will adjust

to hearing impairment and treatment protocols (Erdman, 1993). In addition, the lack of formal, consistent training in counseling for students in audiology programs has been demonstrated (Flahive & White, 1982; McCarthy et al., 1986).

The nature of the counselor-client relationship is crucial to the counseling process (Erdman, 1993). Two models related to the effective operationalization of this relationship have particular relevance to the work of audiologists: the medical model (Illich, 1977) and the rehabilitation/helping process model (Anderson, 1977; Brammer, 1985).

Patients are not actively involved in decision-making processes related to their treatment in the medical model. Instead, professionals direct the remediation process with little or no input from their patients. Patients may not understand or accept protocols recommended by professionals, and patients' concerns in the affective domain are either disregarded or reserved for attention by clinical psychologists or support groups such as Self Help for the Hard of Hearing (Luterman, 1991).

With the rehabilitation model, patients are actively involved in the identification and management of their problems. Advocates of the rehabilitation model emphasize the importance of a counseling relationship between professionals and patients. Empathy, warmth, understanding, and respect are fostered between clinicians and patients in tandem with provision of information by professionals regarding diagnosis and treatment. In short, professionals' responsibilities to their patients extend beyond the assessment and recommended treatment of problems and include a functional, supportive relationship with them (Kelly, 1992).

Given the longitudinal relationship between audiologists and their patients, and the importance of patients' acceptance of and active participation in their treatment programs, the rehabilitation model seems well suited to the aural rehabilitation goals of audiologists. Audiologists not only face the challenge of analyzing the degree of measured hearing loss but also of developing treatment programs that account for a variety of personal, attitudinal, and situational factors affecting their patients. Further, patients can vary in their needs for proportions of informational and emotional counseling. Although some untested scales have been offered to evaluate the services of audiologists (see, e.g., Dimick & Krause, 1975), there remains a need for research-based evaluations of counseling effectiveness (Ohlsen, 1983). Additionally, the field of general counseling is not helpful in providing scales that could be adapted for use in evaluating audiologists' effectiveness in working with their patients.

Of particular interest in this study is the counseling effectiveness of audiologists working with elderly patients. Often, intervention strategies are directed toward the elderly, who represent 24% of audiologists' caseloads (Weinstein, 1989). Cranmer (1989) reported that nearly 61% of hearing aids sold by hearing instrument specialists were to people over the age of 65 years. Yet, only 13-18% of all elderly persons with hearing impairment own a hearing aid, though this population stands to benefit as much as any from amplification (Weinstein,

1989). The combination of prevalence of hearing aid use among the elderly and the importance of tailoring amplification programs to their needs highlights the necessity for outcome studies designed to assess treatment effectiveness for this population.

Older adults frequently fail to pursue treatment for their hearing loss, often because they feel that hearing loss is a common problem among the elderly. Lesner and Kricos (1991) contend that audiologists place too much emphasis on diagnosing hearing difficulties and prescribing hearing aids for their elderly patients, and too little emphasis on motivating them to pursue audiologic rehabilitation programs. The rehabilitation model, with emphasis on helping patients to make the most of their residual hearing, maximizing use of amplification, and developing strategies for improving communication, seems well suited for use with the elderly population.

A few studies have investigated the effectiveness of counseling-based treatment programs for elderly adults with hearing impairments. Kricos, Holmes, and Doyle (1992) concluded that a 4-week communication training program designed to familiarize patients with how spoken messages can be complemented by situational and linguistic cues did not effect differences between experimental and control groups on the Hearing Handicap Inventory for the Elderly (HHIE) and speech recognition measures. Abrams, Hnath-Chisholm, Guerreiro, and Ritterman (1992) concluded that counseling-based aural rehabilitation programs have the potential to decrease patients' perceptions of handicap when used early in the amplification process. How such counseling programs can be optimally developed, administered, and evaluated remains to be determined, however.

To date, the impact of counseling on elderly hearing-impaired patients remains relatively unexplored. This study was designed to generate a scale for audiologists to gauge their counseling effectiveness with their elderly patients.

METHOD

Three audiologists were selected to help generate potential items for inclusion in the proposed scale. They were selected because they had extensive experience working with elderly patients (7 to 16 years) and because they advocated the provision of both information and emotional support to their patients. These audiologists generated items that they believed to be related to effective counseling of elderly patients based on their familiarity with the rehabilitation model and from their experience working with elderly patients. Some of the items generated reflected information gleaned from actual comments made by elderly patients during audiological assessments. The audiologists generated a preliminary instrument composed of 39 items.

This instrument was administered to 80 elderly individuals who were seen for initial audiological evaluations. The subjects received the evaluations at a university-affiliated speech and hearing clinic. The elderly patients were in good general health and were able to pay for services received. All subjects had some

Table 1
Counseling Effectiveness Scale for the Elderly (ACES-E)
Factor Structure and Loadings and Item-Total and Factor-Based Item-Subtotal Correlations

Item	Factor Loading		Item Total <i>r</i>	Item-Subtotal <i>r</i>	
	Factor 1	Factor 2		Factor 1	Factor 2
Factor 1: Emotional Items					
1. The audiologist accepted me as an individual.	.75	.06	.65	.67	
3. The audiologist was sincere and gained my confidence.	.58	-.12	.68	.69	
6. The audiologist dealt with most of the fears and concerns I had about my condition.	.65	-.10	.56	.55	
8. The audiologist seemed to like me and treated me kindly.	.65	.05	.62	.63	
9. The audiologist showed interest in my situation.	.52	.16	.69	.68	
11. The audiologist listened to me.	.71	-.04	.67	.66	
14. I was satisfied with how I was counseled.	.64	-.06	.70	.71	
15. The audiologist was patient with me.	.72	.08	.59	.57	
17. I felt comfortable talking with my audiologist.	.74	.09	.54	.52	
19. I was pleased with how the audiologist structured my sessions.	.51	.16	.62	.64	
22. The audiologist seemed aloof, detached, and irritable with me.	-.70	.06	-.65	-.63	
23. The audiologist made me feel embarrassed about my condition.	-.60	.12	-.70	-.71	
25. I felt I could ask questions when I had them.	.52	.18	.63	.62	

Continued on next page

Table 1 continued

Item	Factor Loading		Item Total <i>r</i>	Item-Subtotal <i>r</i>	
	Factor 1	Factor 2		Factor 1	Factor 2
Factor 2: Informational Items					
2. The audiologist responded to me at my level and used language I could understand.	-.08	.52	.66		.67
4. The audiologist discussed my hearing difficulty completely.	.06	.68	.72		.71
5. I was pleased with how much I learned about my hearing condition.	.04	.62	.61		.63
7. The audiologist explained my audiogram and what it meant.	-.10	.70	.64		.62
10. The audiologist helped me understand options for dealing with my handicap.	.20	.61	.68		.69
12. I would recommend this audiologist to a friend as an informed, task-oriented, competent person.	-.12	.58	.71		.72
13. The audiologist answered questions clearly and completely.	-.08	.60	.74		.75
16. The audiologist seemed knowledgeable about pros and cons of hearing aid use.	-.12	.62	.66		.64
18. I have satisfactory information about what kinds of improvement I can expect with my hearing aid.	-.04	.72	.58		.57
20. I understood what the audiologist said about how my hearing difficulty will affect my life.	.12	.51	.54		.55
21. Based on the information I received, I would go back to this audiologist.	.09	.53	.68		.67
24. The audiologist made it clear when I should return for a follow up evaluation.	-.07	.55	.76		.78
26. I got sufficient information about costs related to my treatment program.	.09	.51	.74		.72

degree of hearing loss. In general, audiometric configurations were indicative of presbycusis, showing bilateral high-frequency hearing loss.

Four audiologists were selected to conduct the audiologic evaluations of the subjects and to meet with them regarding preliminary recommendations about amplification and treatment protocols. The audiologists were briefed regarding the nature of the counseling instrument, assumptions of the rehabilitation model, and potential behaviors reflecting informational and emotional counseling behavior. Each audiologist saw 20 patients. The follow-up discussion and counseling session for each patient was audiotaped. Five tapes for each audiologist were randomly selected and played to three clinical supervisors who confirmed that there was representation of both informational and emotional contact in the audiologists' behavior in each of the taped sessions.

Following their assessments, subjects completed the Audiologist Counseling Effectiveness Scale for the Elderly (ACES-E) in the reception area without the audiologist being present. All subjects completed the questionnaire using a paper-pencil format. Subjects were instructed to evaluate their audiologist according to the following instructions:

Please take a few minutes to read the following statements and indicate how much you agree with each. Using the numbers printed after the statements, circle the number 1 if you are NOT AT ALL in agreement, 2 if you SLIGHTLY agree, 3 if you MODERATELY agree, 4 if you CONSIDERABLY agree, and 5 if you EXTREMELY agree with the statement.

RESULTS

Factor analysis was used as a data reduction technique to determine whether the items fell into subsets. Principal axis with iteration was the initial factoring method used, and factors having eigenvalues greater than 1.0 were retained. Communalities ranged from .29 to .70. Four factors had eigenvalues greater than 1.0 and accounted for 91.9% of the variance. The oblique rotation method (delta value = .2) was superior to the orthogonal method for achieving simple structure (Rummel, 1970). An item was considered part of a factor if it had a primary loading of at least .50 with no secondary loading greater than .20. Based on the application of this decision rule, the interpretability of factors, and the amount of variance accounted for by each factor and the total factor solution, a two-factor solution was most interpretable (Tinsley & Tinsley, 1987). The solution accounted for 84.3% of the variance.

Factor I, Emotional, accounted for 54.1% of the variance and had an eigenvalue of 13.5. These items related to subjects' perceptions of audiologist behavior in the affective domain of counseling. Items reflected general comfort individuals felt with their audiologists and audiologists' willingness to accept and listen to their patients. Factor II, Informational, accounted for 30.2% of the variance and had an eigenvalue of 9.3. Audiologists' behavior associated with conveying substantive content related to hearing loss seemed to be measured by the items comprising this factor. Items reflected assessment of audiologists'

abilities to provide information related to dealing with the nature of patients' handicap, options for coping with the handicap, possibilities for improvement through amplification, and costs of treatment programs. The items composing the Emotional and Informational factors and their loadings appear in Table 1.

Since oblique factors may be correlated, a Pearson correlation was performed to check the independence of the Emotional and Informational factors. The $-.26$ value of the r indicated that the factors measured two relatively unrelated indices.

Subjects' scores ranged from 27 to 58 on the Emotional subscale and from 42 to 65 on the Informational subscale. The mean score on the Emotional dimension was 43.2 ($SD = 12.5$). The mean score on the Informational dimension was 55.4 ($SD = 5.7$). Means and standard deviations for each item on the ACES-E scale appear in Table 2.

The internal reliability of the factored ACES-E instrument was reflected by the $.93$ value of Cronbach's alpha. Values of the alphas for the Emotional and Informational subscales were $.92$ and $.89$, respectively. The internal consistency of the scale and that of the two-factor-based subscales were supported by an item-total r and item-subtotal r s (i.e., Factors 1 and 2 subscores); see Table 1. Finally, subscale reliability estimates were computed using a split-half, odd-even method. This analysis resulted in values of $.92$ on the Guttman Split-Half and the Spearman-Brown Equal Length coefficients.

A final statistical analysis investigated whether subjects perceived individual differences in the behaviors among the four audiologists who conducted their audiological evaluations. Analysis of variance revealed no significant differences on the audiologists' mean scores for either the Emotional or Informational subscores. Had differences been apparent, information relative to the sensitivity of the ACES-E scale could be reported, and some evidence of the scale's validity would be evident. Lack of significant differences in the behaviors among the four audiologists can be explained by the fact that they were trained to display substantial amounts of emotional and informational behavior in their relations with the patients. Presence of these behaviors was confirmed by supervisors who evaluated taped interactions between the audiologists and patients, as reported in the Methods section.

DISCUSSION

Increasing participation of audiologists in the dispensing of hearing aids and the increased need for quality assurance in this process necessitates documentation of the efficacy of hearing aid fittings and treatment programs. Taylor's finding (1993) that there is little relationship between audiometric measures and patients' self-perceptions of hearing handicap reinforces the need to explore strategies for both informing and counseling patients during their treatment programs.

In general, the factor analytic data support the ACES-E scale as an internally

Table 2
Means and Standard Deviations for Items Composing the ACES-E Scale

Item	<i>M</i>	<i>SD</i>
Factor 1: Emotional Items		
1. The audiologist accepted me as an individual.	3.31	.87
3. The audiologist was sincere and gained my confidence.	4.10	.97
6. The audiologist dealt with most of the fears and concerns I had about my condition.	3.70	.84
8. The audiologist seemed to like me and treated me kindly.	3.78	.97
9. The audiologist showed interest in my situation.	3.62	.92
11. The audiologist listened to me.	3.66	1.02
14. I was satisfied with how I was counseled.	3.81	1.00
15. The audiologist was patient with me.	3.80	1.14
17. I felt comfortable talking with my audiologist.	3.43	1.08
19. I was pleased with how the audiologist structured my sessions.	3.60	1.11
22. The audiologist seemed aloof, detached, and irritable with me.	1.27	1.02
23. The audiologist made me feel embarrassed about my condition.	1.52	.81
25. I felt I could ask questions when I had them.	3.62	.85
Factor 2: Informational Items		
2. The audiologist responded to me at my level and used language I could understand.	4.30	.42
4. The audiologist discussed my hearing difficulty completely.	3.92	.31
5. I was pleased with how much I learned about my hearing condition.	4.15	.35
7. The audiologist explained my audiogram and what it meant.	3.85	.51
10. The audiologist helped me understand options for dealing with my handicap.	4.45	.56
12. I would recommend this audiologist to a friend as an informed, task-oriented, competent person.	3.92	.45
13. The audiologist answered questions clearly and completely.	4.40	.37
16. The audiologist seemed knowledgeable about pros and cons of hearing aid use.	3.95	.60
18. I have satisfactory information about what kinds of improvement I can expect with my hearing aid.	3.81	.50
20. I understood what the audiologist said about how my hearing difficulty will affect my life.	4.30	.58
21. Based on the information I received, I would go back to this audiologist.	4.78	.35
24. The audiologist made it clear when I should return for a follow-up evaluation.	4.80	.32
26. I got sufficient information about costs related to my treatment program.	4.71	.38

reliable instrument with the potential for assessing the relative effectiveness of audiologists in dealing with the emotional and informational dimensions of patient counseling. Although these two dimensions reflect the theoretical perspective of the rehabilitation model, this is the first time that they have been quantitatively conceptualized, analyzed, and defined. Future investigations will be required to assess the validity of the scale and to reexamine its psychometric properties. This study sought to develop a scale specifically designed for elderly patients. Future work might investigate the factor structure of the scale when used with patients of different age groups.

The ACES-E scale has several possible uses. Audiologists can use the scale to determine whether their elderly patients are satisfied with their counseling. More specifically, they can identify particular scale items or combinations of items which indicate that they are succeeding or failing with their patients in the functional and/or informational domains. Modifications for improvement can then be made.

The scale also has research applications. Do particular counseling styles work best at particular times during the treatment protocols? For example, during initial audiologic evaluations should there be similar or different proportions of emotional and informational content by audiologists? Are there factors (e.g., patient age, gender, personality type, negative attitude toward testing, nervousness, time of day, how long the patient has waited for the audiologist) that affect these proportions? Do patients' needs change during follow-up visits and might particular counseling behaviors help patients avoid experiencing self-perceived problems at this time? In particular, three studies concur that elderly subjects' self-perceptions of handicap decline after initial hearing aid fitting, increase significantly after 3-4 months of hearing aid use, and stabilize between 6 months and 1 year of use (Malinoff & Weinstein, 1989; Mulrow, Turley, & Aguilar, 1991; Taylor, 1993). Might alterations or adaptations of counseling be vital at 3-4 months for elderly hearing aid patients? In short, the ACES-E scale might be used in conjunction with audiometric measures and other indices like the Hearing Handicap Inventory for the Elderly (HHIE), developed by Ventry and Weinstein (1982) to interpret patients' reactions to audiologic rehabilitation programs and to tailor treatment protocols to the needs of particular patients.

Given the relatively small sample size of elderly subjects, it is too early to accept the ACES-E scale at face value. Nevertheless, this study gives credence, at least from the reliability standpoint, to dimensions of counseling behavior previously identified by the rehabilitation model. A major component related to effectiveness in treating elderly hearing-impaired patients is maintaining their interest and active participation in their aural rehabilitation throughout the duration of their programs. The ACES-E scale provides the potential vehicle for assessing counseling behavior of audiologists with elderly patients during this time.

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