Effectiveness of Counseling-Based Adult Group Aural Rehabilitation Programs: A Systematic Review of the Evidence

David B. Hawkins*

Abstract

A systematic evidence-based review was conducted to examine the effectiveness of counseling and communication strategy-oriented group adult aural rehabilitation (AR) programs. The literature search for relevant articles focused on studies that (1) employed adults with hearing impairment; (2) used a group aural rehabilitation program that emphasized counseling and communication strategies; (3) utilized a randomized controlled trial, quasi-experimental, or non-intervention cohort design; (4) employed an outcome measure that assessed some aspect of personal adjustment, perceived hearing handicap, or hearing aid benefit and/or satisfaction; and (5) were published in a refereed journal. Twelve articles were found that met these inclusion criteria. Analysis of the 12 studies led to the following conclusion: there is reasonably good evidence that participation in an adult AR program provides short-term reduction in self-perception of hearing handicap and potentially better use of communication strategies and hearing aids. It is less clear whether this advantage over provision of hearing aids alone persists over time.

Key Words: Communication strategies, group adult aural rehabilitation program, hearing aids, hearing handicap, systematic evidence-based review

Abbreviations: AR = aural rehabilitation; CPHI = Communication Profile for the Hearing Impaired; HHIA = Hearing Handicap Inventory for Adults; HHIE = Hearing Handicap Inventory for the Elderly

Sumario

Se condujo una revisión sistemática basada en evidencia para examinar la efectividad de los programas de consejería y estrategias de comunicación en rehabilitación auditiva orientados a grupos de adultos (AR). La búsqueda en la literatura de artículos relevantes se concentró en estudios que (1) utilizaban adultos con trastornos auditivos, (2) utilizaban programas grupales de rehabilitación auditiva que enfatizaban estrategias de consejería y comunicación, (3) utilizaban estudios aleatorios controlados, con diseños de cohorte cuasiexperimentales o de no intervención, (4) utilizaban una medición de resultados que evaluaran algunos aspectos de ajuste personal, de percepción de impedimento auditivo, y de beneficio y/o satisfacción de su auxiliar auditivo, y (5) hubieran sido publicados en revistas de referencia. Se encontraron doce artículos que cumplieran con estos criterios de inclusión. El análisis de los 12 estudios llevó a las siguientes conclusiones: existe una evidencia buena y razonable de que la participación en un programa de AR para adultos aporta una reducción a corto plazo de la auto-percepción de impedimento auditivo,

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When a sensorineural hearing loss is present, hearing aids are not capable of restoring normal hearing. This is undoubtedly due to the fact that a sensorineural hearing loss does not just cause attenuation of sound but also results in disturbances in loudness perception, frequency discrimination, and temporal resolution. As a result, the person with hearing impairment using hearing aids will have residual hearing difficulties, many of which are situation specific. Due to these remaining problems, treatment through hearing aids alone, while helpful, may not provide optimal rehabilitation.

There have been many approaches to providing rehabilitation to the person with hearing impairment in addition to the use of hearing aids. In earlier times, a common approach was to focus on individual therapy concentrating on lipreading or speechreading training. While this can certainly be helpful (Walden et al., 1981), a narrow approach focusing only on speechreading neglects the issues of personal adjustment to the hearing loss and interaction with friends and family members. As a result, in the period between 1975–95, a number of articles and books began appearing that stressed communication strategies and counseling and emphasized a more holistic approach (Hardick, 1977; Luterman, 1984; Erber, 1988; Abrahamson, 1991; Binnie, 1991; Montgomery, 1993; Clark and Martin, 1994; Montgomery, 1994; Tye-Murray, 1994; Kricos and Lesner, 1995; Erber, 1996).

While some individual therapy is still being practiced, the most common approach to the implementation of the counseling/communication strategy rehabilitation model with adults is through a group setting. The group approach has three major advantages: (1) it allows the person with hearing impairment to share feelings, problems, and solutions with others and develop alternative ways of dealing with communication failure; (2) the audiologist is able to provide rehabilitative services to more persons with hearing impairment in the same amount of time; and (3) it is financially more feasible for the audiologist and the person with hearing impairment. Northern and Beyer (1999) reported that the hearing aid return rate was 3% for patients who attended a group aural rehabilitation (AR) and 9% for those who did not attend.

Official statements by the British Society of Audiology (Markides et al, 1979) and the Self Help for Hard of Hearing People (1996) organization support the need for group AR programs. For effective AR case management, the American Speech-Language-Hearing Association suggests that the audiologist must be able to “Provide … group adjustment counseling related to hearing loss for individuals with hearing impairment and their families” and “provide training in effective communication strategies to individuals with hearing impairment, family members, and other relevant individuals” (2001, p. 398). Despite the support of these organizations and the fact that audiology has embraced hearing aid dispensing, group AR programs are not routinely offered by most practicing clinical audiologists.

The purpose of this paper is to provide a systematic review of the evidence regarding the effectiveness of counseling and communication strategy-oriented group adult AR programs. To this end, the following question was formulated to guide the search for evidence: Do adult group AR interventions that focus on counseling and communication strategies provide measurable benefits over the short or long term in benefit/satisfaction with hearing aids, adjustment to hearing loss, or perceived hearing handicap? (See the article by Cox in this issue for a review of the principles of evidence-based practice.)
METHOD

Inclusion and Exclusion Criteria

Studies were selected for analysis if they met the following criteria:

- Subjects were adults with hearing impairment
- Subjects underwent a group AR program that emphasized counseling, communication strategies, personal adjustment, and provision of information about hearing, hearing loss, and hearing aids
- A randomized controlled trial, quasi-experimental, or nonintervention cohort design was employed with an appropriate sample size
- An appropriate outcome measure was used that assessed some aspect of personal adjustment, perceived hearing handicap, or hearing aid benefit and/or satisfaction
- Publication of the results appeared in a refereed journal

Search Strategy

The search for relevant studies had several strategies. First, three major search engines were employed: (1) ComDisDome, which is a search engine designed specifically to locate articles in the field of communication disorders; (2) PubMed, a general medical search engine which covers many of the journals relevant to audiology through access to MEDLINE, Pre-MEDLINE, and HealthStar; and (3) Cumulative Index to Nursing and Allied Health Literature (CINAHL), a search engine that covers much of the audiological literature. A variety of key words were used in the searches, including “audiologic rehabilitation,” “adult aural rehabilitation,” “group aural rehabilitation,” and “counseling and hearing aids.” Second, after important and critical articles that directly addressed the question at hand were located, the reference lists were examined for articles that did not appear in the above searches. Third, references were examined in a major AR textbook (Alpiner and McCarthy, 2000) and a review of AR in Seminars in Hearing that was published in 2000. The latter contained a particularly relevant paper by Kricos and Lesner (2000) that summarized the success of adult group AR programs. Finally, three prominent audiologists actively involved in adult AR research (Harvey Abrams, Robyn Cox, and Pat Kricos) were contacted and their reference lists for adult AR were obtained. These lists were then crosschecked with the articles generated from the above three approaches.

RESULTS

The large majority of articles located through the above searches on adult AR groups were nonexperimental in nature. There are many review articles on how to do adult AR and expert opinions on the value of rehabilitation programs. These appeared in refereed journals, trade journals, book chapters, and entire books.

Based upon examination of abstracts, citations in other articles, and close examination of the various reference lists cited above, 22 papers were found that deserved close attention. Of these 22, 13 were found to meet the inclusion criteria cited above. A summary of these 13 studies is shown in Table 1. The results will now be summarized in terms of what type of outcome was assessed, the time of assessment (short term versus long term), and a general analysis of the better-designed studies.

Type of Outcome Measure

The type of outcome measure chosen is critical, as it must reflect the expected change that is hypothesized to result from the treatment that is being applied, in this case an adult AR group. In analyzing these studies, it is clear that the majority of researchers in this area believe that a reduction in the perception of hearing handicap is the primary benefit that should result from the AR process. Nine of the 13 studies (Smaldino and Smaldino, 1988; Abrams et al, 1992; Hallberg and Barrenas, 1994; Andersson et al, 1995a, 1995b; Norman et al, 1995; Brickley et al, 1996; Beynon et al, 1997; Brewer, 2001; Preminger, 2003) used a questionnaire that intended to assess hearing handicap, the most common being the Hearing Handicap Inventory for the Elderly (HHIE or HHIA, for adults), or a similar scale that was developed for the specific study. Four studies (Hallberg and Barrenas, 1994; Andersson et al, 1995b;
Preminger, 2003; Chisolm et al, 2004) used a measure of use of communication strategies and/or personal adjustment, one of the primary components in this type of rehabilitation approach. Two studies (Norman et al, 1995; Brickley et al, 1996) included a measure of hearing aid use and performance, while one study each looked at quality of life (Abrams et al, 2002) and relaxation issues (Andersson et al, 1995a). Several studies (Hallberg and Barrenas, 1994; Andersson et al, 1995a, 1995b; Preminger, 2003) chose to use multiple outcome measures, but no single study used a combination of outcome measures that would assess the variety of hypothesized benefits, such as reduction in hearing handicap, satisfaction or benefit from hearing aids, use of communication strategies, and personal adjustment.

The majority of studies reviewed showed some reduction in the perception of hearing handicap as a result of being in an AR group. In some studies (Smaldino and Smaldino, 1988; Abrams et al, 1992; Hallberg and Barrenas, 1994; Beynon et al, 1997; Preminger, 2003), the finding was clear and significant, while in others only certain aspects were significant or the finding was negative (Andersson et al, 1995a, 1995b; Norman et al, 1995; Brewer, 2001). The two studies that examined hearing aid use and performance (Norman et al, 1995; Brickley et al, 1996) found a positive influence at least in some domain. Relaxation (Andersson et al, 1995a) and quality of life (Abrams et al, 2002) showed improvement from the group experience, although these are single studies on each area. Use of some communication strategies improves (Andersson et al, 1995b; Preminger, 2003; Chisolm et al, 2004), and some aspects of personal adjustment are improved at least for the short term (Hallberg and Barrenas, 1994; Chisolm et al, 2004). In spite of the number of studies addressing these various issues, it is difficult to draw firm conclusions due to the lack of many well-designed experiments.

**Short- versus Long-Term Assessment**

A critical issue that arose in examination of these studies is the time period at which benefit from the AR group was assessed. The most common approach has been to obtain some type of pre-intervention measure and then repeat it at the end of the AR group, a time period that is typically four to eight weeks. Such an approach will obviously assess the short-term benefits of the exposure. Eleven of the thirteen studies measured their dependent variable at this point in time. Two studies included a measurement at four months, which would probably still be considered short term by most standards. Two studies used a longer period, one being one year (Chisholm et al, 2004) and another two years (Andersson et al, 1995b).

The Chisholm et al (2004) study found a particularly interesting result. Subjects in the AR group showed a difference in communication strategy usage from the control group when measured at the end of the AR group, but at one year there was not a significant difference. The observed advantages for the AR group subjects stayed level from the immediate post-test to the one-year assessment, but the difference disappeared because the control group subjects improved over the one-year time period. While the Andersson et al (1995b) study was far less rigorous and not as well controlled, there was a similar tendency in their data as well, with some short-term benefits of the AR group giving way to equivalent performance at the two-year assessment point.

**Number of Subjects**

The number of subjects employed in the studies that were reviewed would have to be characterized as rather small. For instance, for the 11 studies that had control groups, the number of subjects in the treatment group was 10, 10, 11, 12, 12, 21, 21, 42, 50, 53, and 53. There is clearly a need for more studies that have larger numbers of subjects in order to tease out potential benefits of adult AR groups.

**DISCUSSION**

In reading the nonexperimental literature on adult AR groups, it is clear that those who write about this topic are strongly in favor of inclusion of this type of rehabilitation for persons with hearing loss. This support undoubtedly stems from their clinical experiences that suggest that patients do benefit from the group rehabilitation experience when it focuses on coping with the everyday effects of hearing loss. It can safely
Table 1. Summary of Studies on Adult AR Groups That Met the Inclusion Criteria

<table>
<thead>
<tr>
<th>Reference</th>
<th>Design</th>
<th>Intervention</th>
<th>Outcomes</th>
<th>Results</th>
<th>Comments and Study Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abrams et al (1992) Ear Hear</td>
<td>RCT</td>
<td>AR group for 3 sessions</td>
<td>HHI</td>
<td>AR reduced self-perception of hearing handicap</td>
<td>Good study but small N and only veterans; no charge for services; Rating: +</td>
</tr>
<tr>
<td>Abrams et al (2002) J Res Rehab Devel</td>
<td>RCT</td>
<td>AR group for 4 sessions (8 hours)</td>
<td>SF-38V, mental and physical components of quality of life</td>
<td>HA + AR improved in mental domain more than HA, but not significant</td>
<td>Good study but only veterans, no charge for services; Rating: +</td>
</tr>
<tr>
<td>Andersson et al (1995a) Behav Res Ther</td>
<td>RCT</td>
<td>AR group total of 8 hours</td>
<td>Video observation, Hearing Coping Assessment (HCA)</td>
<td>AR improves relaxation and posture, No difference in HAs or handicap</td>
<td>Small N, subjective nature of video analysis, phone interview; Rating: -</td>
</tr>
<tr>
<td>Andersson et al (1995b) Br J Audiol</td>
<td>RCT</td>
<td>AR group total of 8 hours</td>
<td>HCA and communication strategies subscale of CPFI (posttest only)</td>
<td>HCA—no difference. On CPFI, AR subjects watched faces more and less pretending</td>
<td>Small N, groups not equivalent on pretest of HCA, so not random; Loss of subjects; Rating: -</td>
</tr>
<tr>
<td>Benyon et al (1997) Br J Audiol</td>
<td>RCT</td>
<td>AR for 4 weeks (# of hours unknown)</td>
<td>Quantified Denver Scale of Communication Function, scales for self, family, social/ vocational, and communication</td>
<td>AR group had larger reduction in handicap. Change was in social/vocational and communication scales, not self and family</td>
<td>5 subjects from treatment group dropped; subjects only under age 80 and only mild and moderate loss; Rating: -</td>
</tr>
<tr>
<td>Brickley et al (1998) Br J Audiol</td>
<td>Non-intervention cohort design.</td>
<td>Mailed questionnaire</td>
<td>No difference on HA use or satisfaction. Group AR rated HA performance better</td>
<td>No control without rehab, variable times of treatment, questionnaire not described well</td>
<td>Rating: -</td>
</tr>
<tr>
<td>Brewer (2001) J Acad Rehab Audiol</td>
<td>Non-intervention cohort design, no control group, N = 35</td>
<td>AR group for 6 weeks (2 hrs./week)</td>
<td>HHRA, given at first and last AR group session</td>
<td>5 subjects showed reduced perception of handicap. 3 increase, 27 no change</td>
<td>No control group. Students did the AR group; Rating: -</td>
</tr>
<tr>
<td>Chisolm et al (2004) Ear Hear</td>
<td>RCT</td>
<td>AR group for 4 sessions (8 hours)</td>
<td>CPHI, given pre- and postgroup and at 1 year</td>
<td>AR better short term in communication strategy use. 1 year no difference as HA group improved</td>
<td>Excellent study. Limitation of only veterans, quicker service if in study; Rating: +</td>
</tr>
<tr>
<td>Hallberg and Barrenas (1995) Br J Audiol</td>
<td>RCT</td>
<td>AR group for 6 hours (12 hours)</td>
<td>Multiple handicap scales, communication strategies of CPFI, self-rating of handicap</td>
<td>AR less perceived handicap short term, but no difference at 4 months</td>
<td>Large dropout from AR group, mild HL, only 4 HA users, all less than 63 yrs. old; Rating: -</td>
</tr>
<tr>
<td>Norman et al (1995) Scand Audiol</td>
<td>Non-intervention cohort design.</td>
<td>AR group for 6 hours at 4 weeks post HAF</td>
<td>Questionnaire and diary, said to assess HA use and satisfaction in hearing handicap</td>
<td>AR more satisfied with HA, but no more usage and no difference in hearing handicap</td>
<td>High dropout rate and poor attendance. Dependent variable not well defined; Rating: -</td>
</tr>
<tr>
<td>Preminger (2003) J Am Acad Audiol</td>
<td>Non-intervention cohort design.</td>
<td>AR group for 4 weeks (total time not given) and/or disclosure of subject's cognitive style</td>
<td>HHIE/A and CSOA</td>
<td>Pre-post showed reduction in handicap with more if significant other present. Better use of communication strategies</td>
<td>Small N, no control group who received no treatment, assignment to group not totally random; Rating: -</td>
</tr>
<tr>
<td>Smaldino and Smaldino (1988) J Acad Rehab Audiol</td>
<td>RCT</td>
<td>AR group (total time not given) and/or disclosure of subject's cognitive style</td>
<td>Hearing Performance Inventory (HPI), given at HAF and again after AR or 4 weeks after HAF if no AR</td>
<td>AR group had significant decrease in perception of hearing handicap. Knowledge of cognitive learning style had no effect</td>
<td>Small N. Did not report whether control group showed a decrease in hearing handicap; Rating: -</td>
</tr>
</tbody>
</table>

Note: RCT = randomized controlled trial design; AR = aural rehabilitation; HA = hearing aid; HHI = Hearing Handicap Inventory for Elderly; HHIA = Hearing Handicap Inventory for Adults; CPHI = Communication Profile for the Hearing Impaired; HL = hearing loss; HAF = hearing aid fitting; CSOA = Communication Scale for Older Adults; “+” = very low risk of bias: any weaknesses that are present are very unlikely to alter the conclusions of the study; “++” = low risk of bias: identified weaknesses or omitted information probably would not alter the conclusions of the study; “-” = high risk of bias: identified weaknesses or omitted information are likely or very likely to alter the conclusions of the study. 489
be said that expert opinion, as well as the opinion of professional organizations, supports the benefits of adult AR groups. This opinion is shared by this writer, who has conducted counseling-based AR groups for many years. Anonymous evaluations by patients of the Mayo Clinic Jacksonville adult AR group program are strongly positive. For example, the last 307 patients who completed the program were asked to rate the overall benefit of the AR group on a six-point scale (from 1 [“Not Helpful”] to 6 [“Very Helpful”]). The mean rating was 5.8, with 97% of the patients giving a score of 5 or 6. Patients rate the section on communication strategies as the most useful portion of the course. The last 125 patients taking the course were asked the following question and answered anonymously: “As a result of this course, my ability to deal with hearing loss and the problems it creates: 1) is no different, 2) increased a little bit, 3) increased a moderate amount, or 4) increased a lot.” Answer #4 was given by 57% of the patients, 33% responded with #3, 10% gave #2 as a response, and no patients felt their ability to deal with their hearing loss was “no different” (#1). Thus, 90% of the participants report that their ability to deal with their hearing loss had increased by a “moderate amount” or “a lot.” All of these evaluations of the Mayo AR program were taken at the end of the AR group and thus reflect a “short-term” reaction.

In looking at the experimental results of this systematic review, one does not see overwhelming evidence to support the benefits of group AR programs. While there certainly do appear to be benefits, at least in the short term, for a reduction in perception of hearing handicap, not all studies find that result, and the effect is not always large. In a similar vein, the findings of improved use of communication strategies, possibly enhanced personal adjustment, and better use of hearing aids are not well documented or replicated.

If the experts are correct in their belief that adult AR groups are helpful and worth the investment of time and effort by both audiologist and patient, what are potential reasons that the experimental results are not overwhelming, and why is there a hint that the positive effects may be mainly short term? One potential reason may be that the outcome measures chosen by the experimenters do not tap the benefit that patients receive from the AR group. As noted earlier, the majority of studies have chosen as an outcome measure some way of assessing the perception of a reduction in hearing disability. It could be that the AR group allows the patient to deal with his or her handicap better, not reduce it. In other words, they do not feel that their handicap is lessened; they just have better strategies of coping with the problems and frustrations that a hearing loss creates, or perhaps they simply accept it better. If this explanation were true, one might expect the benefits to show up in studies that assessed communication strategies and personal adjustment. The studies that attempted to assess these factors (Hallberg and Barrenas, 1994; Andersson et al, 1995b; Preminger, 2003; Chisolm et al, 2004) found some positive results, but again the evidence is not strong and favors short-term gain in these areas. It could be argued that the outcome measures chosen to assess these areas, such as the Communication Profile for the Hearing Impaired (CPHI) (Demorest and Erdman, 1987), do not specifically address the benefit the patient is receiving.

The observed trend of short-term gain for the AR group members, but not long-term benefit over hearing aids alone, is an interesting finding. One could hypothesize that the short-term benefit is due to the positive feelings that can result from participating in a group experience. However, the reason for the lack of a benefit compared to the control group at the long-term evaluation point in time was not due to a decrease in the treatment group but an improvement in the control group over time. If the finding of equivalent performance of AR group members and non–group members at the one-year period is supported by future research, then one would need to question whether the presence of only short-term benefits would justify the recommendation of adult AR groups. Chisolm et al addressed this issue by stating, “the observed short-term advantage may be particularly important from a clinical perspective. The first post-test data were obtained approximately 6 to 8 wk after hearing aid fitting. This period of time encompasses the typical hearing aid trial period in which individuals decide whether or not to keep their hearing aids. If better outcomes, in terms of self-perception of personal
adjustment, are important in the decision to keep hearing aids, then inclusion of a counseling-oriented AR program would appear warranted” (2004, pp. 474–475).

Another variable that has not been addressed is whether the skill of the person directing the group has an influence on the outcome. Since much of the time in these AR groups is spent discussing problem situations, feelings, and strategies, one could certainly hypothesize that the skill of the person leading the group could well contribute to the outcome. The ability of the group leader to get patients to talk, express their problems and feelings, and talk about alternative ways of coping with hearing loss could be an important factor in the perceived benefit. It might be enlightening if a future study were to include multiple clinicians as a variable to determine if this could be a factor in perceived benefit.

The quality of studies that were found in this systematic review was not uniformly high. The two studies with the best design and larger number of subjects are clearly those of Abrams et al (2002) and Chisolm et al (2004). Both of these studies found positive effects of adult AR groups, with Abrams et al (2002) showing an improvement in quality of life, and Chisolm et al (2004) finding a short-term improvement in use of communication strategies and personal adjustment. As mentioned earlier, the long-term follow-up of the Chisolm et al study did not find a significant difference when the AR group was compared to a hearing aids alone control group. The main limitation of both of these studies is that a veteran population was used, in which case the hearing aids and services provided were not paid for at market prices. Whether this population is indeed different from the general population is a matter of speculation and deserves further study. Regardless of this potential limitation or inherent bias, these two studies, when combined with the other evidence shown in Table 1 and expert opinion, can lead to some general conclusions and recommendations. There do appear to be short-term benefits to counseling-based adult group AR programs. Whether the benefits are present over the long term is not yet clear, and only two studies have data that address the short-term/long-term issue. A major priority in future research in this area should be to clarify whether the long-term advantage is indeed absent or reduced and whether it may be present for some outcome measures and not others.

CONCLUSIONS

Given the large number of publications in the area of AR for adults over the last 50 years, this systematic review revealed very few well-controlled studies with larger numbers of subjects. As a result, firm conclusions about the effectiveness of adult AR groups that emphasize counseling and communication strategies are limited. Based on the available evidence, one can conclude with some assurance that at least in the short term there are benefits of adult AR groups. The benefits appear to be in a reduction of the perception of hearing handicap, improvement in perceived quality of life, and perhaps better use of hearing aids and communication strategies. There may also be some improvement in personal adjustment. Some of these benefits may also accrue at a later point in time to those who obtain hearing aids without the adult AR group. There is clearly a need for future studies to determine whether there are long-term benefits to adult AR groups.

To better determine the benefits of adult AR groups, future research should include the following: (1) subjects that represent the general population of persons with hearing impairment; (2) randomized controlled trial design; (3) adequate number of subjects given the variability of the outcome measure; (4) multiple outcome measures that tap various aspects of potential benefit, such as reduction in perceived hearing handicap, personal adjustment, use of communication strategies, hearing aid benefit and/or satisfaction, and quality of life; (5) the influence of participation of significant others; and (6) assessment of both short- and long-term benefit.

REFERENCES


OTHER USEFUL REFERENCES
RELEVANT TO ADULT GROUP
AURAL REHABILITATION


