

Critical Review: Is aural rehabilitation beneficial for adults with hearing impairment?

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This critical review examines the evidence regarding aural rehabilitation and its benefits for adults with hearing impairment. Study designs include: randomized controlled trials, systematic reviews and a cohort design. Overall, the evidence collected for this review supports the use of aural rehabilitation as a supplement to hearing instrument fitting due to its short term benefits. Further research regarding the long term benefits of aural rehabilitation is warranted.

Introduction

The primary form of rehabilitation for adults with hearing impairment is through the provision and use of hearing instruments. As the population continues to age, more and more adults will be diagnosed with a hearing impairment and seek intervention strategies. Research has found that numerous people with hearing impairment who do become fit with hearing aids either choose to not wear their aids or continue to wear them but nonetheless experience ongoing communication difficulties (Hickson, Worrall & Scarinci, 2007).

Aural rehabilitation may be an alternative or adjunct to the traditional hearing instrument fitting. Aural rehabilitation involves administering services to reduce the effects of hearing impairment (Abrams, Hnath-Chisholm, Guerrero & Ritterman, 1992). These programs generally focus on personal adjustment, by providing communication strategies and support, and information counselling regarding the effects and types of hearing impairment (Abrams et al., 1992). Communication programs may vary greatly in the specific content, delivery mode, and duration of both the sessions and the course itself (Laplante-Levesque, Hickson & Worrall, 2010).

Aural rehabilitation emerged as a distinct professional field in North America following World War II (Valente, Hosford-Dunn & Roeser, 2008). Intensive and comprehensive audiological rehabilitation services were provided to veterans who had acquired hearing loss during the war. These services experienced great success; however, they failed to be adapted to programs outside the military setting due to many factors such as the cost of providing such services and a simultaneous breakthrough in diagnostics and hearing instrument technology (Valente et al., 2008). The provision of aural rehabilitation remains under the scope of practice of audiologists, yet many clinicians do not offer these programs to their clients (Hawkins, 2005). If clinicians are to be encouraged to provide these services, it should be found in the literature that aural

rehabilitation programs today are beneficial for the client. This will allow clinicians to make an informed decision as to whether or not aural rehabilitation should be a service they choose to provide and will potentially allow new hearing aid users to experience decreased communication difficulties and increased quality of life, if found to be beneficial.

Objectives

The primary objective of this paper is to critically examine the existing literature regarding the benefits of aural rehabilitation for adults with hearing impairment. These benefits include decreased self-perceived hearing handicap, improved communication, and increased use of hearing instruments and increased quality of life. A secondary objective is to provide recommendations for clinical practice and future research.

Methods

Search Strategy

Computerized databases, including CINAHL, PubMed, and OVIDonline, were searched using the following search strategy:

((Group aural rehabilitation)
OR (group audiological
rehabilitation) OR (counseling) AND
(hearing aid benefit) OR (benefit) OR
(outcome) OR (handicap) OR
(satisfaction)).

The search was limited to articles written in English between 1985 and 2010.

Selection Criteria

The studies selected for inclusion in this critical review paper were required to examine the effects of aural rehabilitation on adults with hearing

impairment. Studies were required to provide group counseling or communication based programs to adults over the age of 18. Studies in which significant others attended the aural rehabilitation program as well were excluded. No criteria were set for subjective or objective outcome measures.

Data Collection

Results obtained from the literature search yielded (4) randomized controlled trials, (2) systematic reviews and (1) cohort design. The majority of the studies fell under the level 1 category of graded evidence.

Results

Randomized Controlled Trials

The results of these studies are discussed in chronological order.

Smaldino & Smaldino (1988) examined the influence of aural rehabilitation, as well as cognitive style disclosure, on hearing impaired adults' perception of hearing handicap. Forty first-time hearing aid users were divided into four groups. The first group participated in a four week aural rehabilitation program while the second group participated in the program and were told their cognitive learning style as well. A third group was only told about their learning style and the control group simply wore their new hearing aids. The effect of treatment on self-perceived hearing handicap was measured through the use of the Hearing Performance Inventory (HPI) which was completed at the time the individuals were fit with hearing instruments and four weeks later. The aural rehabilitation program consisted of four sessions covering each of the following topics: speechreading, the auditory system, auditory training, and communicating in different environmental situations. Results of the HPI indicated that participation in the aural rehabilitation program was associated with a greater decrease in perception of hearing handicap than receiving hearing aids alone. Knowledge of cognitive learning style did not have a significant effect on perceived hearing handicap.

A study by (Abrams et al., 1992) used the Hearing Handicap Inventory for the Elderly (HHIE) to survey the effect of counseling-based aural rehabilitation on hearing handicap. Participants consisted of 31 veterans who had no previous experience with amplification. The first group of participants received hearing instruments and took part in a communication program. The second group received hearing aids alone. The control group did not receive hearing aids and did not participate in the three week program. This counseling program focused on developing communication skills through discussion

and activities and speechreading training. At the end of the treatment period, both experimental groups experienced a decrease in hearing handicap; however, the decrease was only significant on the emotional subscale of the HHIE.

Chisolm, Abrams & McArdle's (2004) study assessed both the short and long term outcomes of a counseling-based aural rehabilitation program. Participants included 106 veterans with no history of hearing aid use. Veterans were divided into two equal groups: the control group which received hearing aids alone and the treatment group which received hearing aids and attended a four week counseling group. The Communication Profile for the Hearing Impaired (CPHI) was administered to all participants prior to hearing aid fitting, after the group program, and at six and twelve months following hearing aid fitting. Results revealed better short term communication outcomes for those adults that participated in the aural rehabilitation program. However, experimental groups showed no significant difference at one year post-fitting as the hearing aid only group experienced improved scores on the CPHI while the hearing aid plus counseling group's scores remained stable.

The 'Active Communication Education' (ACE) program for older adults with hearing loss was evaluated by Hickson et al. (2007). This five week communication program involved 178 participants divided into two groups. The first group took part in a placebo social program for five weeks and then the ACE program. The second group completed the ACE program only. A variety of assessment tools were used before and after each type of intervention. These included the Hearing Handicap Questionnaire, the Quantified Denver Scale of Communication Function, the Self-Assessment of Communication, the Ryff Psychological Well-Being Scale, and the Short Form 36 health-related quality of life measure. The Client Oriented Scale of Improvement, the International Outcome Inventory, and a qualitative questionnaire were used post-intervention only. Results indicated that those who completed the ACE program experienced significant improvements on almost all outcome measures which were maintained at the six month assessment.

Systematic Review

Hawkins (2005) conducted a systematic review of adult group aural rehabilitation programs. The review analyzed eight randomized controlled trials and four non-intervention cohort studies. Out of the twelve studies examined, ten resulted in significant improvements for the aural rehabilitation groups on at least one measure, such as reduced perception of hearing handicap, increased used of communication strategies and better self-reported hearing instrument

performance. It was concluded in this study that strong deductions regarding the effectiveness of adult aural rehabilitation could not be made due to limitations inherent in the studies examined. However, Hawkins' (2005) systematic review was able to conclude that aural rehabilitation groups do result in some short term benefits.

A review of the literature discussing benefits from aural rehabilitation programs was conducted by Preminger (2007). The purpose of this review was to briefly examine seven adult group aural rehabilitation studies and describe issues associated with this type of research. Four of the seven studies had positive outcomes such as decreased hearing handicap, increased well-being and positive coping behaviours for the experimental group. Unfortunately, the results of two of the studies were not discussed.

Cohort Design

Norman, George, Downie & Milligan's (1995) study recruited 124 participants to examine the effectiveness of a communication course for new hearing aid users. The experimental group completed the three week course post hearing aid fitting while a control group and matched control group did not. A questionnaire was completed pre and post-fitting and a diary was kept by all participants. The participants of the communication program also filled out a questionnaire about the course. Results revealed that the aural rehabilitation group was more satisfied with their hearing aids but did not use them more or differ in perceived hearing handicap compared to the control groups.

Discussion

Smaldino & Smaldino (1988) had a small number of participants with only ten adults in each of their four groups. The individuals also ranged in age from 30 to 90 years which make it difficult to separate possible age-related differences, such as cognitive ability to learn and use new information from differences due to group assignment. The four week program was a reasonable length of time and covered a variety of topics aimed at increasing communication skills. On the other hand, the authors did not comment on the length of each session which is problematic for replicating the results of the study. As well, the authors did not discuss how the participants were recruited. Method of recruitment can influence results of a study as participants who are recruited with the use of incentives such as discounted hearing aids or free services may be more driven to report benefit from the program. Overall, the results of this study are suggestive as it was able to demonstrate a significant reduction in perceived hearing handicap as a result of participation in

a short aural rehabilitation program, yet there were several flaws inherent in this research.

There were several limitations involved in the study by Abrams et al. (1992). The first limitation is the small number of participants and the short duration of the treatment at just three weeks. In addition, only one outcome measurement tool was used, the HHIE, which was administered before hearing aids were provided and two months later. Therefore, no conclusions can be drawn as to the long-term outcomes of this communication course. However, the authors provided a thorough description of all methods and the counseling program itself which allows easy replication of the study. Altogether, the results of this study are again suggestive.

The results of the study by Chisolm et al. (2004) are suggestive due to the significant short term findings and the various limitations of the research. Unlike the previous studies, this program had a large number of participants which allows for better application of results. Nonetheless, its aural rehabilitation program was only a moderate length at just four weeks long. This time span may not be long enough to create long-lasting changes on an individual's communication style and perception of hearing handicap, which could account for the lack of significant results at the one year follow-up. As well, no explanation of the content of the aural rehabilitation program was given, reducing ability to replicate the study.

One primary limitation of these last two studies is the population used. Abrams et al. (1992) and Chisolm et al. (2004) selected all veterans for their study which represent a large proportion of older adults with hearing impairment but are not generalizable to younger adults or non-veterans. These individuals differ from the general population as they are mostly males and may receive hearing instruments and aural rehabilitation services free of charge. Chisolm et al. (2004) noted that veterans were guaranteed quicker service if they chose to participate in their study which may have been motivation for individuals to participate in the aural rehabilitation classes.

Also, both of these studies only used one outcome measurement tool which may not have been able to capture the areas that individuals improved or worsened on, as a result of intervention.

Results of the study conducted by Hickson et al. (2007) are compelling as a large sample size was used which included both males and females of various ages with varying previous experience with hearing instruments. This is important for application of the study results as it can be generalized to many different populations. The researchers were double-blinded and administered many different measurement tools to assess a variety of areas that may experience change as

a result of treatment. It also included a long-term follow-up at six months in which improvements were maintained still. However, since one of the treatment groups involved participating in a five week placebo social program before attending a five week communication program, many individuals chose to drop out before completion of the study. Also, the authors did not state if individuals improved on any of the outcome measures upon completion of the social program alone. This does not allow conclusions to be made as to whether it is the social aspect of group aural rehabilitation classes or the content of the programs that causes improvement on the outcome measures.

Hawkins' (2005) review clearly outlines the inclusion and exclusion guidelines and criteria used for the literature search. However, the statistical analysis used in each study to compute whether or not results were significant was not discussed. More investigation of the reliability and validity of each study by the author is warranted. As well, the author chose only to discuss the well-designed studies in depth and simply wrote a chart describing the remaining studies. Overall, the results of this systematic review are compelling as the vast majority of the studies examined demonstrated significant improvements as a result of aural rehabilitation programs.

The systematic review by Preminger (2007) is also compelling as it thoroughly describes issues associated with measuring benefit from aural rehabilitation courses and offers many ideas for future research. This review falls short in terms of discussing the results of all of the studies examined and the criterion for choosing the seven papers. Many components of the studies were also left unnoted, such as type of study, number of participants, and statistical analysis of results.

The cohort study by Norman et al. (1995) provides limited evidence for the benefit of aural rehabilitation as there are a number of limitations. There was a high dropout rate and attendance was unexplainably much higher for females than males. Additionally, this research study only examined short term effects and the diary did not prove to be an effective outcome measurement tool as many participants failed to complete it.

Conclusion

Although there were many limitations in each of the studies examined, it can be seen from the current literature that aural rehabilitation does provide significant short-term benefit for hearing impaired adults and can be useful as a supplement to the traditional hearing aid fitting. The benefit may be in terms of decreased self-perception of hearing handicap, better coping skills, and increased quality of life.

Although long-term benefit was not seen beyond six-months, the short term benefit of participating in aural rehabilitation programs may be clinically significant. Since new hearing aid users are found to experience greater short term reductions in hearing handicap if they participate in an aural rehabilitation group, and this short term benefit occurs during the usual trial period of hearing aids, this benefit could be influential in individuals' decision to keep their new hearing aids or not (Hawkins, 2005). Since it was found that new hearing aid users who do not participate in aural rehabilitation programs "catch-up" and reach the same amount of improvement at the 1 year follow-up, it is suggested that participation in these programs may accelerate the benefits of hearing aid use (Preminger, 2007). Also, the lack of long term benefits could be a result of the typically short duration of aural rehabilitation programs, the type or number of outcome measures used, or a combination. Future research should focus on assessing long term benefit of aural rehabilitation programs using programs of varying durations and with multiple outcome measures. Research should also consider the implications of fee-for-service programs versus no-fee programs on participant's outcomes.

Clinical Implications

Based on the literature reviewed, delivering aural rehabilitation to new hearing aid users can provide them with important short term benefits. There is sufficient evidence to conclude that participation in adult group aural rehabilitation classes can lead to decreased self-perceived hearing handicap, better and increased use of communication strategies and increased well-being. If aural rehabilitation programs are offered, they should be at least a moderate length (i.e. four weeks minimum), although more research is needed to determine an optimum program duration. The majority of aural rehabilitation programs examined focused on teaching about the auditory system and hearing loss, communication strategies in multiple listening environments, and speechreading. The counseling of these topics proved to have positive results for the participants and is therefore recommended as potential topics for clinician's developing their own aural rehabilitation programs. It is also recommended that multiple outcome measures are used to capture the range of possible benefits for the client.

References

- Abrams, H., Hnath-Chisolm, T., Guerreiro, S., & Ritterman, S. (1992). The effects of intervention strategy on self-perception of hearing handicap. *Ear and Hearing, 13*(5), 371-377.

- Hnath-Chisolm, T., Abrams, H., & McArdle, R. (2004). Short- and long-term outcomes of adult audiological rehabilitation. *Ear and Hearing, 25*(5), 464-477.
- Hawkins, D. (2005). Effectiveness of counseling-based adult group aural rehabilitation programs: A systematic review of the evidence. *Journal of the American Academy of Audiology, 16*, 485-493.
- Hickson, L., Worrall, L., & Scarinci, N. (2007). A randomized controlled trial evaluating the active communication education program for older people with hearing impairment. *Ear and Hearing, 28*(2), 212-230.
- Laplante-Levesque, A., Hickson, L., & Worrall, L. (2010). Rehabilitation of older adults with hearing impairment: a critical review. *Journal of Aging and Health, 22*(2), 143-153.
- Norman, M., George, C., Downie, A., & Milligan, J. (1995). Evaluation of a communication course for new hearing aid users. *Scandinavian Audiology, 24*, 63-69.
- Preminger, J. (2007). Issues Associated with the measurement of psychosocial benefits of group audiological rehabilitation programs. *Trends in Amplification, 11*(2), 113-123.
- Smaldino, S. & Smaldino, J. (1988). The influence of aural rehabilitation and cognitive style disclosure on the perception of hearing handicap. *Journal of the Academy of Rehabilitative Audiology, 21*, 57-64.
- Valente, M., Hosford-Dunn, H., & Roeser, R. (2008). *Audiology: Treatment* (2nd ed). New York: NY: Thieme Medical Publishers, Inc.