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Assessment of subjective outcome of hearing aid fitting: getting the client's point of view

Key Words
Subjective data
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Quality of life

Abstract

This paper provides an overview of the measurement of hearing aid fitting outcomes in real life using self-report methods. Three topics are addressed: (1) why we should measure real-life outcomes; (2) seven different types of self-report outcome data; and (3) issues to consider in self-report outcome measurement. It is stressed that self-report data provide a unique view of the way that clients function and feel in their daily lives with regard to their hearing health. Self-report outcome data are multidimensional, and the different domains are only moderately correlated. When these types of data are gathered, it is essential to control relevant variables to safeguard validity and reliability.

Introduction

Clients have always provided assessments of the real-life outcome of their hearing aid fitting. However, until quite recently, these were usually given in informal discussions with non-professionals. We professionals often did not know our client's opinions, and if we did, they were not regarded as serious scientific data.

In the past, practitioners have been taught to use some of the measures listed in Table 1 to determine whether the hearing aid fitting was successful. Sometimes we looked for a better word recognition score, a match to the insertion gain prescription, or a judgment of sound loudness or quality. These measures allowed us to quantify hearing aid fitting outcomes using objective methods, in a laboratory-type setting, under controlled conditions.

Why measure self-report outcomes?

With all this, why do we need self-report data as well? I am going to argue that there are at least three good reasons. First, there have been gradual changes in the healthcare system and attitudes about who should be in charge. Not long ago, the healthcare service provider was regarded as the expert: he or she was the one who decided what the treatment would be, when it was completed, and how successful it was. Then, for largely economic reasons, payer-driven systems arose in which the institution that paid the bills was given the power to make treatment decisions. In the present, healthcare systems are evolving which are consumer-driven. In these systems, the consumer decides what treatment is selected and when it is complete. In the new era of consumer-driven hearing healthcare, the major index of quality of service is self-report outcome and satisfaction data (DeJong & Sutton, 1995). Thus, we have witnessed

a gradual change of focus from disorder to person. In the old way of thinking, we used to ask 'what hearing loss does this person have?' In the new era, we ask 'what person does the hearing loss have?' The result is that, as we move towards consumer-driven healthcare, the client's point of view is becoming increasingly accepted as a valid and important indicator of the success of treatment. In the long run, what the practitioner thinks may not matter very much if the client has a different opinion.

Second, we need to recognize that there are many domains of real-life outcome that cannot be accessed in the laboratory. After all, why do people seek hearing aids? It is not because they have a hearing impairment. It is because they cannot carry out their daily activities as they want to, or because they cannot participate in their family, social and cultural lives in the way that they want to. In other words, people seek hearing aids because they are experiencing activity limitations or participation restrictions, or both (World Health Organization, 2001). The traditional hearing aid outcome measures listed in Table 1 cannot readily grasp activity limitations or participation restrictions, because these problems are very individualized—they depend on personal circumstances, family situation, lifestyle, etc. To quantify them, we need self-report data.

Table 1. Traditional laboratory measures of fitting outcomes

Speech recognition in quiet
Speech recognition in noise
Insertion gain
Functional gain
Aided loudness judgments
Aided quality judgments
Speech intelligibility index

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Third, even when we are able to simulate real-world conditions in the laboratory, we usually find that laboratory outcome measures do not closely resemble the client's impression of real-life outcome in the simulated situation. A typical example is given in Figure 1, adapted from Cox & Alexander (1992). Figure 1 shows the relationship between speech recognition data measured in laboratory-simulated situations and clients' reports of speech recognition ability in the actual situations in real life. The highest correlation is 0.61. This can be interpreted to indicate that the variance in laboratory data describes less than 40% of the variance in real-life data. Self-report measures are increasing in use, because they give us a scientifically defensible way to validly measure the real-life success of the hearing aid fitting.

There are many existing self-report outcome measures to quantify hearing aid effectiveness, and more are being developed all the time (e.g. Bentler & Kramer, 2000). We professionals are often unprepared for the task of choosing among them. Many of us were educated before the widespread interest in self-report outcome measurement. We often have minimal background knowledge to help select among the available instruments. How should we choose an appropriate one for a particular application? It is not simple. To be really suitable for its intended use, the outcome measure has to fulfill both the technical and non-technical requirements listed in Table 2.

The technical considerations important for outcome measure selection are reviewed in Hyde (2000). For most applications, it is important to have access to normative data for appropriate comparison groups. The ability to generate norms is one of the most cogent arguments in favor of using a standardized outcome measure (see later). Information on test–retest reliability is essential, so that expected consistency across time and testers
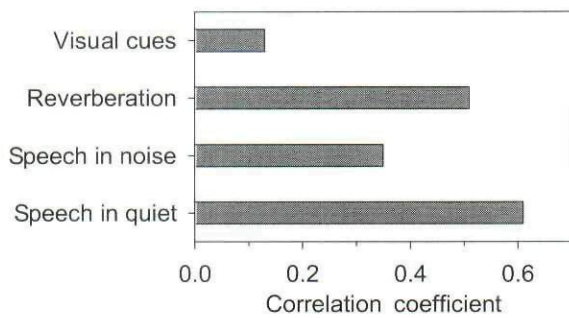
is known. In addition, reliability data are needed to generate statistically based methods for interpreting differences between scores. It is also important that the validity of the measure has been explored, so there is a clear understanding of what is being measured and the variables that influence the client's responses. Does the measure provide data that align as expected with other measures of putatively related constructs? Finally, the sensitivity (responsiveness) of the measure must be understood. This reflects the extent to which the scores obtained with the measure are able to detect effects (such as changes in ability or opinions) that are of practical significance in the envisioned application.

Researchers often tend to emphasize the importance of the technical characteristics of an outcome measure, while paying less attention to the non-technical issues. However, as Dillon, Birtles & Lovegrove (1999) and Dillon & So (2000) have demonstrated, the non-technical concerns can be more compelling in determining the ultimate success of an outcome measure in practice. The clinician burden reflects the difficulties experienced by the practitioner in learning to use and interpret the outcome measure. The patient burden reflects the difficulties that clients have in completing the measure. These can include a reading level that is too high, a type size that is too small, too many items, intimidating technology, etc. After the outcome measure is completed, the scoring procedure must be convenient, rapid, and objective. Many of the existing self-report instruments are too long or complicated, especially for use outside the research laboratory. Finally, time-pressured practitioners will not often use an outcome measure unless it provides them with information that is immediately relevant and helpful in treatment planning.

Information on some of these characteristics has been provided for many self-report outcome measures. However, most existing measures have not been studied enough to allow a full understanding of all their properties. It is incumbent on the researcher/practitioner to consider and weigh all of these issues before choosing an outcome measure. Unless absolutely necessary, it is usually better not to generate a new outcome measure, as this is very labor-intensive.

Seven different types of self-report outcome data

Several different terms have been used, often interchangeably, to describe the content domain measured by a self-report instrument. For example, a search of the literature will reveal that 'satisfaction' and 'benefit' are often interchangeable, as are 'disability' and 'handicap'. This occurred historically because early workers did not have the benefit of the definitions of outcome domains that are encompassed in the World Health Organization International Classification of Functioning, Disability and Health (World Health Organization, 2001). Furthermore, the distinctions among outcome domains were not widely appreciated until there were several empirical demonstrations of relatively low correlations among them (e.g. Bentler, Niebuhr, Getta & Anderson, 1993; Gatehouse, 1994; Humes, Halling & Coughlin, 1996).

We now know that hearing aid outcome must be regarded as a multidimensional entity. Based on some recent work in our laboratory and others, it is reasonable to think in terms of at least seven different categories of self-report outcome data. They are listed in Table 3 and briefly reviewed below.

Figure 1. Correlations between speech recognition data measured in laboratory-simulated situations and clients' reports of speech recognition ability in the actual situations in real life. Data are given for four different situations.

Table 2. Technical and non-technical considerations relevant to selection of an outcome measure

Technical considerations	Non-technical considerations
Norms	Clinician burden
Reliability	Patient burden
Validity	Scoring
Sensitivity	Utility

Benefit

This outcome dimension is probably the most familiar one for many practitioners. A measure of benefit quantifies change, in a hearing-related dimension of functioning, that has resulted from using amplification. Benefit may be measured directly in terms of degree or amount of change, or it may be computed by comparing aided and unaided performance on a particular dimension. Subjective benefit is typically measured on one or both of two dimensions: activity limitations and participation restrictions (see below for more description of these dimensions). Hearing-specific questionnaires are typically used to quantify hearing aid benefit. The SHAPIE (Shortened Hearing Aid Performance Inventory for the Elderly) is an example of a questionnaire that produces benefit data (Dillon, 1994). Figure 2 illustrates the format of the SHAPIE, and shows a sample item. This outcome measure focuses on how much the hearing aid changes activity limitations.

Satisfaction

Satisfaction can be defined as the aggregate of the individually weighted physical, social, psychological and financial changes resulting from acquiring and using a hearing aid. In casual discussions, we often fail to distinguish between the outcome domains of benefit and satisfaction, but they are actually quite different. It is not unusual for a hearing aid wearer to be high in one domain and low in the other. Satisfaction is a multidimensional variable which includes benefit but also includes several other elements (Cox & Alexander, 1999, 2001a). This dimension of outcome is very significant to patients, but it has received relatively little research attention, possibly because its connection with marketing has made a clear scientific definition more problematic. Cox & Alexander (1999) used well-established principles of survey development to design the

SADL (Satisfaction with Amplification in Daily Life), which is a questionnaire that explores the underlying dimensions of satisfaction without actually using the word satisfaction. Figure 3 illustrates this approach to quantifying the satisfaction domain.

Use time

Use time has often been employed as a indicator of real-world hearing aid outcome. It can be measured objectively, using a variable such as battery consumption, or subjectively with a self-report approach (e.g. Humes, Garner, Wilson & Barlow, 2001).

Use time seems to be rather strongly related to severity of impairment and contextual factors, as well as to the amplification system that is provided (e.g. Haggard, Foster & Iredale, 1981).

Residual activity limitations

Activity limitations relate to the capacity to perform an activity in the manner or within the range considered normal. Residual activity limitations are the difficulties that the hearing aid wearer continues to have in everyday hearing-related tasks such as understanding speech and localizing sounds. The residual activity limitations experienced by a specific individual will depend on the demands of that person's lifestyle. The International Classification of Functioning, Disability and Health (World Health Organization, 2001) contains a full discussion of activity limitations.

The APHAB (Abbreviated Profile of Hearing Aid Benefit) is an example of a self-report scale that provides a measure of residual activity limitations (Cox & Alexander, 1995). When the APHAB is administered after the hearing aid has been worn for a period of time, it generates a profile of scores showing the percentage of time for which problems continue to arise during certain everyday activities. Figure 4 shows an item from the APHAB that measures this outcome domain.

Residual participation restrictions

Participation restrictions relate to the disadvantages that limit or prevent the fulfillment of roles in life that are normal for that individual. Residual participation restrictions are the unresolved problems or barriers that the hearing aid wearer encounters that circumscribe his or her involvement in the situations of daily life. The details of this outcome domain differ across individuals, depending on variables such as age, cultural factors, social factors, and gender. It can include such things as participation

Table 3. Seven domains of self-report outcome, separated into two orthogonal factors

Factor 1 (hearing aid-focused)	Factor 2 (me-focused)
Satisfaction	Impact on others
Quality of life	Residual participation restrictions
Benefit	Residual activity limitations
Use	

Sample SHAPIE item (Dillon, 1994)

Instructions: Check the phrase that best describes how your hearing aid helps you in that situation.

You are sitting at home alone, watching the news on TV.

☐ Very helpful
☐ Helpful
☐ Very little help
☐ No help
☐ Hinders performance

Figure 2. Illustration of a self-report measure that quantifies the benefit outcome domain.

Sample SADL item (Cox & Alexander, 1999)

Instructions: Circle the letter that is the best answer for you.

Are you convinced that obtaining your hearing aid was in your best interests?

A. Tremendously
B. Greatly
C. Considerably
D. Medium
E. Somewhat
F. A little
G. Not at all

Figure 3. Illustration of a self-report measure that quantifies the satisfaction outcome domain.

Instructions: Circle the answer that comes closest to your everyday experience.

With my hearing aids . . .
I miss a lot of information when I am listening to a lecture.

    A. Always (99%)
    B. Almost always (87%)
    C. Generally (75%)
    D. Half the time (50%)
    E. Occasionally (25%)
    F. Seldom (12%)
    G. Never (1%)

Figure 4. Illustration of a self-report measure that quantifies the residual participation restrictions outcome domain.

in church services, and feelings of embarrassment at bridge club meetings. The International Classification of Functioning, Disability and Health (World Health Organization, 2001) contains a full discussion of participation restrictions.

There are relatively few standardized self-report measures that address the domain of residual participation restrictions. The HHIE (Hearing Handicap Inventory for the Elderly) is one of the few short questionnaires that attempts to assess participation restrictions (Ventry & Weinstein, 1982). One approach taken by many practitioners has been to administer the HHIE in an aided listening mode. Although the HHIE was not originally intended to be used as a hearing aid outcome measure, it can be adapted for this use, as illustrated in Figure 5.

Impact on others

It is clearly recognized that hearing impairments often place a heavy burden on family and friends as well as on the involved individual. Thus, presence of hearing impairment in one individual often has negative consequences for others. In fact, encouragement (or compulsion) by significant others is sometimes the major motivator that results in hearing aid seeking. One goal of our rehabilitation treatments is to address these problems in the family constellation.

The relief provided by amplification for the problems in the family constellation (i.e. the impact on others) is an important outcome domain, but one which has received relatively little attention to date. At this time, there are few measures of this particular domain, and none that has been subjected to scientific evaluation. However, the IOI-HA-SO (International Outcome Inventory for Hearing Aids—Significant Others) has recently

Sample HHIE item (Ventry & Weinstein, 1982)

Instructions: Answer Yes, Sometimes, or No for each question.

Now that you have hearing aids . . .
Does a hearing problem cause you to use the phone less often than you would like?

    ❑ Yes
    ❑ Sometimes
    ❑ No

Figure 5. Illustration of a self-report measure that quantifies the residual participation restrictions outcome domain.

Sample IOI-HA-SO item (Noble, 2002)

Instructions: (none needed)

Over the past 2 weeks, with their present hearing aid(s), how much have your partner's hearing difficulties affected the things you can do?

    ❑ Very much
    ❑ Quite a lot
    ❑ Moderately
    ❑ Slightly
    ❑ Not at all

Figure 6. Illustration of a self-report measure that quantifies the impact-on-others domain of outcome.

been proposed to access this domain of outcome (Noble, 2002). The approach taken in this inventory is illustrated in Figure 6.

Quality of life

Many people would argue that improved quality of life is the most fundamental goal of all rehabilitation treatments. A recent large-scale study found that hearing aid ownership was significantly associated with improvements in many aspects of life quality, including social life and mental health (Kochkin & Rogin, 2000). Despite the importance of these effects for individuals, generic, non-hearing-specific measures of functional health status that are often used to gauge quality of life do not tend to be sensitive to the changes that result from hearing aid use (Bess, 2000). The most likely explanation for this seemingly invalid result is that the generic quality of life measures do not often explore communication issues. They focus instead on the physical domain (mobility, pain, self-efficacy, etc.).

Much more attention has been paid to the quality of life outcome domain in the past few years. Quality of life is gaining importance because it is an outcome domain that can be used to compare widely varying health treatments—for example, the effectiveness of hearing aids can be compared to that of artificial legs using quality of life indices. These kinds of data have a major influence in determining where healthcare resources will be allocated. Thus, there is an urgent need for research to develop a generic quality of life measure that will address communication issues.

Relationship among self-report outcome domains

How many different domains of self-report outcome should be measured in order to generate a reasonably complete characterization of the real-life outcome of hearing aid fitting for a particular individual? One way to address this question is to examine the relationships among the different domains. The International Outcome Inventory for Hearing Aids (IOI-HA) is composed of seven items, one in each of the domains described above (Cox, et al, 2000).

Recent analyses of data in the seven outcome domains as measured by the IOI-HA have revealed two factors which explain almost 70% of the variance in real-life outcome data (Cox & Alexander, 2002; Kramer, Goverts, Dreschler, Boymans & Festen, 2002). Factor 1 includes the domains in the left column of Table 3, listed in order of importance to the factor (satisfaction, quality of life, benefit, and use). This factor has been interpreted as encompassing evaluation of the hearing aid devices

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('hearing aid-focused). Factor 2 includes the domains shown in the right column of Table 3, listed in order of importance to the factor (impact on others, residual participation restrictions, and residual activity limitations). Factor 2 is interpreted as reflecting introspection about the influence of the hearing aids on the individual's functioning in daily life ('me-focused').

Although it is not possible to make an unequivocal statement about how many outcome domains should be measured in any application, these results strongly imply that we cannot acquire a full appreciation of the client's point of view by measuring only one outcome domain. A relatively complete picture of the real-life outcome for an individual will require measurements that explore both of these outcome factors.

Issues in self-report outcome measurement

We have clearly entered an era of hearing healthcare in which self-report data will become increasingly influential. Substantive policy and treatment decisions will be based on these types of data with growing regularity. It is important, therefore, to ensure that appropriate procedures are followed for data collection and interpretation. The final section of this paper discusses some of the issues that need to be considered in making measurements of real-life outcomes and in interpreting the data.

Personality

Many practitioners wonder how much personality influences subjective outcome reports. Intuitively, it seems likely that clients' personalities do have an effect on the way in which they respond to self-report instruments. Watson & Pennebaker (1989) supported this view by demonstrating the existence of a significant relationship between negative affect (tendency to experience unpleasant emotional states such as anxiety and guilt) and self-reported health problems. Several studies have reinforced this idea and applied it directly to hearing healthcare by demonstrating relationships between personality attributes (such as anxiety and extroversion) and self-report domains such as hearing disability and hearing aid benefit (e.g. Gatehouse, 1994; Cox, Alexander & Gray, 1999).

Current research in our laboratory is exploring the relationships between a widely used measure of the elements of normal personality structure and many of the self-report domains that are explored both before and after a hearing aid fitting. Although this research is not complete, preliminary results have shown that: (1) responses to self-report questionnaires are often somewhat predictable from personality; (2) some self-report instruments are more strongly related to personality than others; and (3) patterns of relationships seem to be different for public-pay and private-pay clients (Cox & Alexander, 2001b). It is important to continue this kind of research, so that practitioners can develop a clearer understanding of which outcome domains are strongly influenced by personality traits (helpful in planning and counseling), which questionnaires are essentially personality- independent (important for designing clinical trials, for example), and the extent to which data obtained from clients in private-pay systems can be generalized to clients in public-pay systems (and vice versa).

What kind of outcome instrument is best?

Standardized outcome measures have grown in popularity during the last decade. In this type of scale, every client responds to the same set of items. The inventories illustrated in Figures 2–6 are all examples of this genre. The standardized approach has advantages, because norms for comparison groups can be generated, and data for an individual can be interpreted within the context provided by the norms as well as on their own merits. However, the standardized approach is open to the criticism that all the items are usually not equally relevant for all clients. Thus, it is possible that a client may be asked to provide outcome data for situations which are unimportant to him or her (or never actually occur in their life), while outcomes in the most critical situations for that client might never be explored.

In response to these concerns, there has been a movement towards a new generation of client-centered procedures that might be called 'personalized' approaches. These are customized for the individual client. One widely used personalized instrument is the COSI (Client Oriented Scale of Improvement) (Dillon, James & Ginis, 1997). Other approaches in this genre include the GHABP (Glasgow Hearing Aid Benefit Profile) (Gatehouse, 1999), and structured open-ended interviews such as those used by Stephens, Jones & Gianopoulos (2000).

The essential characteristic of personalized self-report inventories is that the 'items' are designated by the client and address the specific occasions or issues that are most significant to that individual. This type of outcome scale has the advantage that the items are always highly salient for the client. However, it is not straightforward to combine data across clients to generate useful norms. Although both standardized and personalized approaches have enthusiastic proponents, neither type of outcome measure is superior in all applications (Cox et al, 2000). Furthermore, anecdotal evidence strongly suggests that using any kind of self-report measure increases the practitioner's sensitivity to a patient's personal predicament and tends to improve services and promote client satisfaction.

Scheduling the collection of self-report data

How much time does the hearing-impaired person need with the hearing aid before we ask for the outcome data? Are the subjective outcomes stable, say, 3 weeks after the fitting, or is it necessary to wait several months for the final result? Do all outcome domains stabilize on the same schedule? These kinds of issues have both scientific and pragmatic significance. For example, in many clinical service settings, regular contacts with clients are limited to a time frame of a few weeks. It is highly desirable to obtain self-report outcome data towards the end of this period. However, this is useful only if those data are predictive of the long-term results of the fitting. Likewise, in clinical trials of the effectiveness of new treatments, it is important to have confidence that obtained self-report data are predictive of future performance. At the same time, constraints on resources dictate that the duration of the trial should be no longer than necessary. Optimal decisions about the timing of data collection require knowledge on the necessary settling time for self-report data.

Several investigators have reported the temporal course of self-report data obtained for diverse outcome domains using a variety of inventories. The results are not always consistent, even when the same inventory is used (see, for example, Humes et al (1996) versus Malinoff & Weinstein (1989)). Ongoing research in our laboratory suggests that the stability of self-report outcome data over time is dependent on an interaction between the

specific outcome domain and the personality of the hearing-impaired individual. This is illustrated in Figures 7 and 8.

Figures 7 and 8 depict self-report outcomes at three post-fitting intervals for two groups of hearing aid users. Group membership was based on the client's score on the neuroticism factor of the NEO-FFI personality inventory (Costa & McCrae, 1992). From an original group of 67 subjects, 26 subjects with the highest neuroticism scores and 29 subjects with the lowest neuroticism scores were selected (all scores were within the normal range). Figure 7 shows self-report outcome in the satisfaction domain measured for each group at 3 weeks, 3 months and 6 months post-fitting. The global satisfaction scores were about the same for both groups, and did not change over time from 3 weeks to 6 months post-fitting. Figure 8 shows a very different pattern of results for the benefit outcome domain measured in terms of reduction in participation restrictions (unaided versus aided HHIE scores). There are two significant ($p<0.03$) effects in this figure. First, subjects scoring high on the neuroticism factor reported significantly more benefit than those who scored low on neuroticism. Second, benefit did not change over the 3-week to 6-month measurement period for subjects with low neuroticism scores. However, subjects with high neuroticism scores reported their highest benefit at 3 weeks post-fitting, and significantly lower benefit after 3 months. Then, during the period from 3 months to 6 months post-fitting, the reported benefit increased again but did not quite reach the 3-week post-fit level.

As these data illustrate, the way in which subjective outcomes vary during the post-fitting period is dependent on several variables, including not only the particular outcome domain investigated, but also the personality characteristics of the hearing-impaired client. It is important to develop a more complete understanding of these effects and interactions before it will be possible to determine the optimal timing of self-report outcome measurement. At this time, it is possible to conclude that: (1) data in some self-report outcome domains can be expected to change during the first few months of hearing aid use; (2) the pattern of change interacts with personality attributes; and (3) some domains of self-report outcome seem to stabilize within 3 weeks after the fitting.
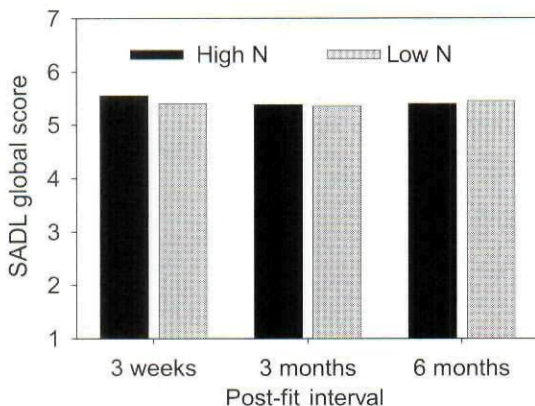
Administration of the self-report instrument

Measures of self-report outcome are designed, evaluated and standardized using a specific administration procedure. The most popular methods of administration are face-to-face interview and pencil–paper. With the widening computer literacy of the general public, completion of inventories through direct interaction with a computer keyboard or touch screen is also seen with increasing frequency. The method of test administration is a potentially important variable affecting self-report data, but it is seldom given due consideration. Tests are often administered in a manner that differs from their original specifications without taking the possible effects of this into account. There are very limited data available on this topic. However, studies that do exist have raised significant questions about the impact of varying administration methods on both the validity and the reliability of self-report data.

Noble (1979) administered the Hearing Measurement Scale by both interview and paper–pencil methods to the same subjects. The data suggested that the paper–pencil method produced reports of greater degrees of disability and handicap. The hypothesis that can be drawn from this is that a self-administered questionnaire is more likely to detect problems than an equivalent interview. This hypothesis is supported by some reports in the healthcare literature not related to hearing (e.g. Goetz et al, 2000; Grilo, Masheb & Wilson, 2001), and has been extended to self-administered computer-assisted questionnaires by Riley et al (2001). However, other researchers have not reported a sensitivity difference between self-administered questionnaire methods and interview methods (e.g. Kaplan, Hilton, Park-Tanjasirir & Perez-Stable, 2001).

On a related topic, Weinstein, Spitzer & Ventry (1986) evaluated the test–retest reliability of the HHIE using both interview and paper–pencil methods. They found that the interview method produced more repeatable self-report data. However, because the same person administered the questionnaire on both interview occasions, there is the possibility that there was an 'interviewer' variable that was partly responsible for this outcome.
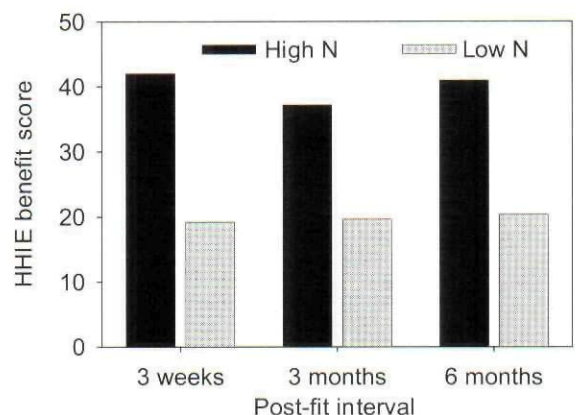

Figure 7. Mean self-report outcome in the satisfaction domain at 3 weeks, 3 months, and 6 months post-fitting. Data are given for 2 groups of subjects whose levels of neuroticism were relatively high or relatively low within the normal range.

Figure 8. Mean self-report outcome in the benefit domain at 3 weeks, 3 months, and 6 months post-fitting. Benefit was measured as the difference between aided and unaided participation restrictions. Data are given for 2 groups of subjects whose levels of neuroticism were relatively high or relatively low within the normal range.

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Overall, the data on the impact of administration methods is insufficient to support confident conclusions. Research on this issue should be a priority. In the meantime, the potential effects of varying administration methods should be taken into account when research and clinical outcome programs are devised.

Final comments

Self-report data offer unique insights into the outcomes of amplification treatments: there is no other way to obtain information about the client's opinions. Although there is a tendency to treat self-report outcome as a unidimensional entity, there are at least seven different domains of self-report outcome data. It is important to pay careful attention to which domains are being measured by any particular outcome inventory. Personality is associated with many responses to questionnaire items, and this needs to be kept in mind when we choose outcome measures for various purposes. The most appropriate outcome measure to use will depend on the goals of the outcomes program. Before selecting an outcome measure, it is essential to define the goals of the measurement and the intended uses of the data.

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