Managing Hearing Loss in a Patient with Alzheimer Disease

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Abstract

This case study reports the management of hearing loss in a patient with Alzheimer disease (AD) living at home with a spouse care giver. The report highlights the interaction between symptoms associated with AD and hearing loss and the lack of data regarding remediation of hearing loss in this population. Specifically, the case illustrates the modifications in evaluation and verification of the hearing aid fitting that may be advisable when working with patients with AD. The data for this patient illustrate some novel measurement techniques that may assist the professional in documenting the impact of treatment in this population.

Key Words: Alzheimer disease, amplification, care giver, hearing loss, problem behaviors

Abbreviations: AD = Alzheimer disease, HHIE = Hearing Handicap Inventory for the Elderly, ITE = in the ear, MMS = mini-mental state

If one proceeds with the assumptions that the quality of life is greatly influenced by effective communication, effective communication requires the ability to successfully interact with others, interpersonal interaction requires the ability to appropriately process spoken messages, and unmanaged hearing loss will most likely interrupt the processing of spoken messages regardless of other pre- or coexisting conditions, then one must consider hearing management in the hearing-impaired patient with Alzheimer disease (AD). Peters et al (1988) reported that hearing deficits were the most frequently unrecognized condition in AD patients because patients either communicate adequately in quiet or the impairment is masked by other behavioral symptoms of AD. Diseases can interact to make a pair of diseases much more disabling than either one alone, and this may be the relationship between AD and aging hearing impairment.

Hearing and Dementia

Kay et al (1964) reported that 62 percent of aging individuals with organic mental syndromes also had impaired hearing compared to only 31 percent of the mentally normal control group. Hodkinson (1973) reported a 48 percent incidence of hearing loss in demented patients as opposed to a 29 percent incidence in a nondemented population. Uhlmann et al (1989) found a higher incidence of hearing loss (defined as average thresholds above 30 dB HL) in 100 Alzheimer's patients as compared with 100 nondemented, matched subjects. They found hearing sensitivity correlated with severity of cognitive dysfunction and therefore concluded that unmanaged hearing loss contributed to cognitive decline. Peters et al (1988) followed subjects with dementia (various etiologies) with and without hearing loss. The authors reported a decline in cognitive function at follow-up in the group with unmanaged hearing loss. In the Alzheimer's group, hearing impairment predicted a more rapid cognitive decline at follow-up. These data support the notion that a large
percentage of patients with AD seeking health care are experiencing communication difficulties related to hearing loss as well as the primary disease itself.

Auditory Status

The auditory systems of patients with AD have been studied in order to identify any differences in these patients compared with aging peers. There do not appear to be abnormalities of the peripheral, subcortical, or primary cortical pathways (Grimes et al, 1987; Strouse et al, 1995). Some authors have suggested that the long-latency potentials (e.g., P300) demonstrate abnormalities associated with the disease (e.g., Fenton, 1986). These later potentials are believed to be more cognitively based and may be impacted by the disease process or may impact the disease process. Strouse et al (1995) found that although 10 AD patients performed similarly to matched control subjects on peripheral hearing tasks, the AD patients performed significantly worse on four of five central auditory tests (cognitively based tasks). Sinha et al (1993) reported a consistent pattern of degeneration in the auditory system of nine patients with AD that included all frequencies and occurred at the level of the central auditory nuclei. This is in contrast to degeneration seen in typically aging adults that impacts high-frequency hearing and is more peripheral in nature. Even if there are central difficulties, the patient must have an audible signal before one can hope for the central system to make use of it. These data also support the use of single-subject design in order to document treatment efficacy since it would be impossible to compare ability to some type of normal or typical group.

Psychosocial Reactions Associated with Hearing Loss

The similarities between the psychosocial literature describing the impact of hearing impairment on life activities and reactions and the literature describing the impact of AD are striking. Besides its effect on communication, hearing loss also has been attributed to eliciting feelings of helplessness, depression, passivity, and negativism (Herbst and Humphrey, 1980; Weinstein and Ventry, 1982) and has been associated with an accelerated and rapid cognitive decline in subjects with dementias of various etiologies (Peters et al, 1988; Uhlmann et al, 1989). Hearing loss may cause cognitive dysfunction indirectly through associated social isolation (Thomas, 1981; Norris and Cunningham, 1981; Weinstein and Ventry, 1982), disorientation (Ohta et al, 1981), and depression (Herbst and Humphrey, 1980; Jones et al, 1984; Thomas and Herbst, 1980; Eastwood et al, 1985). Birren (1964) notes that the loss of auditory contact may actually adversely affect an individual's ability to adjust to all life situations. The individual's sensory environment is being changed and normal interpersonal relations as well as social contacts may change drastically.

The psychosocial impact of a documented hearing loss on patients with AD, although assumed to mirror that of other nondemented aging individuals, has not yet been investigated. The sensory deficits associated with hearing loss in patients with AD are thought to be related to a variety of problem behaviors, such as repetitive questioning, arguments, and activity disturbances. These problem behaviors of the patient contribute to increased perceptions of care giver stress, anger, and burden (Bourgeois et al, 1992). It is likely that undetected/unmanaged hearing loss could aggravate any of these reported conditions and that managed hearing might alleviate some of the difficulty directly related to communication. Although hearing loss is continually reported in the AD population, no studies regarding management of the loss have been reported, thereby positively impacting the care giver and patient.

Lack of Hearing Management

Recently, Durrant et al (1991) reported data indicating that 1 of 10 hearing-impaired AD patients had hearing aids whereas 6 of 10 age and hearing loss matched control subjects used amplification. For the aging patient with AD, there appear to be five major barriers to hearing impairment management: lack of medical referral, difficult-to-test stereotype, lack of efficacy data, inappropriate technology, and lack of access to ongoing care.

Evaluation Considerations

Patients with AD traditionally have been considered hard to test or impossible to test. At least two studies related to hearing evaluation do not support this belief. Uhlmann et al (1989) used an audiometric screening of 40 dB HL with 34 demented and 31 nondemented subjects and
found them to produce reliable (repeatable) hearing sensitivity results. Durrant et al (1991) performed full audiometric test batteries with 10 Alzheimer patients without notable difficulty. The ability to reliably evaluate hearing sensitivity in this group is essential before hearing management can be realistically considered. Appropriate hearing aid selection without a great deal of patient-directed fine tuning is difficult without reliable audiometric test results.

Efficacy Documentation

Measurement of hearing handicap may be the most appropriate evaluation tool with patients with AD. Results from patients and care givers may be of interest. Davis and Robbins (1989) investigated the results of interview questionnaires with aging adults with and without cognitive impairment. Based on similar rank order of symptoms between groups and reliability for a 1-year interval, the authors concluded that interviewing aging individuals with cognitive impairment is a useful method for discovering concurrent disorders that may be remediable.

Hearing handicap inventories have two purposes: to evaluate the patient's status as he/she comes into rehabilitation of any kind and then to further evaluate a change in status after participating in some sort of rehabilitation. Hearing handicap inventories are a widely accepted measure of treatment efficacy.

There is a lack of agreement between standard audiometric measures and resulting hearing handicap that indicates that hearing handicap cannot be predicted by hearing loss alone (Weinstein, 1984). Measuring the individual's self-perceived hearing handicap can provide the professional with information that audiometric tests are simply not sensitive enough to provide. The Hearing Handicap Inventory for the Elderly (HHIE) (Ventry and Weinstein, 1982) is specifically designed for the elderly adult and was standardized on 100 subjects aged 65 years and older. The 25-question yes/no scale has been reported to have excellent internal consistency, high test–retest reliability, low standard error of measurement, and adequate content and construct validity (Ventry and Weinstein, 1982; Weinstein, 1984). Malinoff and Weinstein (1989) demonstrated the feasibility of using the HHIE to measure hearing aid benefit in aging adults after a 3-week period of amplification. Durrant et al (1991) reported the successful use of the HHIE with 10 AD patients to obtain baseline self-perceived hearing status.

New Technology

Part of the lack of hearing management in patients with AD can be attributed to difficult-to-manage hearing aids that produced less than adequate sound quality. In light of the newest technology and fitting strategies available for hearing remediation, this should no longer be a problem. With the proper use of compression, the individual receives differing amounts of gain as a function of input level that should eliminate the need for a patient-manipulated volume control wheel. With this technology, the user/care giver only has to learn how to insert the battery into the hearing aid and the hearing aid into the ear. A volume control can be a problem because of confusion, touch sensitivity, and dexterity. This technology is available in in-the-ear (ITE) hearing aids as opposed to the two-piece behind-the-ear style. The one-piece instrument may be easier in terms of insertion and may contribute to compliance because it is less bothersome to the wearer.

Access to Care and Continued Service

Hardick (1977) found that at least 25 percent of aging adults required services beyond hearing aid counseling. These services included ongoing counseling and troubleshooting for at least the first month of hearing aid use. The evaluation, hearing aid selection and fitting, and counseling can take from four to eight visits for the aging adult in order to achieve successful hearing aid use. This type of ongoing appointment becomes prohibitive for the care giver who must organize the patient's travel. More than likely, the pair are already traveling to a variety of other health care providers. Practicing communication strategies and amplification use in an unfamiliar environment also may be an inefficient use of time for the AD patient. With the advent of portable diagnostic equipment and validated prescriptive hearing aid fittings, necessary evaluation and remediation can take place in the patient's home, eliminating unnecessary confounding variables in treatment.

SUMMARY

Currently, there are data illustrating a high incidence of hearing loss in the AD population. In addition, there are some data indicating overlapping communication difficulties that may be caused by AD, hearing loss, or a combination of these conditions. The current
literature supports the ability to accurately document hearing status in AD patients. Despite this information, there is a paucity of empirical data and/or clinical reports related to the management of hearing loss in this population. The following report illustrates an attempt to remediate hearing loss in a patient with AD living at home with his spouse.

CASE REPORT

Background

The patient is a 78-year-old white male with a dual diagnosis of probable AD and multiple infarct dementia. He was given this diagnosis in September 1996. The patient's cognitive impairment is considered moderate in degree (Hughes et al, 1982), based on a score of 18/30 on the mini-mental state (MMS) evaluation (Folstein et al, 1975). His condition has remained stable since the initial diagnosis was given. His wife attributes the stability of his cognitive state to Aricept, a drug prescribed to slow the progression of AD. The patient started taking Aricept prior to data collection reported in this case. The patient presently lives at home with his wife (age 73).

The wife reported that the patient was diagnosed with a hearing loss approximately 1 year ago. However, she did not pursue amplification at that time due to her concerns that the patient would not be able to manage a hearing aid. The wife noted that the patient has difficulty in several daily listening situations including watching television and engaging in conversation. She indicated that the patient has recently become more introverted. Reportedly, the patient had been a very outgoing individual who enjoyed conversing with others. The patient noted that he had been exposed to intense noise while working as a foreman in a chemical plant. His wife believes that the impairment of the patient's communication abilities may be a consequence of both the AD and his hearing loss.

When asked what communication situations the patient's wife most hoped a hearing aid would improve, she stated that she wanted to stop having to shout at the patient. She noted that this is often a source of tension between them because he does not always understand why she has to raise her voice. The patient's wife also reported that she would like to be able to listen to the television at a "normal level." The patient stated that he would simply like to "hear better."

Evaluation

The audiologist visited the patient's home on seven occasions. The first three visits were conducted over the first 3 weeks in order to collect relevant patient and spouse data for the hearing aid fitting. During the first visit, air- and bone-conduction audiology was completed along with tympanometry (ANSI, 1978). A Beltone portable audiometer, equipped with insert earphones, was used to obtain audiomeric data (ANSI, 1970, 1977). The Storz portable immitt
Table 1 Tracking Form Used by the Care Giver

<table>
<thead>
<tr>
<th></th>
<th>Problem 1</th>
<th>Problem 2</th>
<th>Problem 3</th>
<th>Daily Hours of Hearing Aid Use</th>
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<tbody>
<tr>
<td></td>
<td>Searching for Spouse</td>
<td>Making Negative Statements</td>
<td>Repeating Questions</td>
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tance system was used to collect tympanometric data. Pure-tone audiometry revealed the presence of a moderate-to-severe sensorineural hearing loss, bilaterally (Fig. 1). Tympanometric results were within normal limits, bilaterally, indicating normal middle ear function with a 226-Hz probe tone. The patient’s wife was asked to insert a hearing aid into a model ear and to insert a battery into an ITE hearing aid in order to assess the likelihood of her success in manipulating the hearing aid for her husband. She had no difficulty with these tasks.

The Behave-AD (see Appendix for example questions) was administered to the wife during the first visit. This questionnaire identifies problem behaviors that are being displayed by the patient and attempts to quantify how upsetting the behaviors are to the care giver. This scale was used in an attempt to identify behaviors associated with AD and communication that might
be impacted by remediation of the hearing loss. Searching for his spouse whenever she was not in the room, making negative statements, and repeating questions were identified as problem behaviors.

During the second visit, the HHIE was administered to both the patient and his wife in reference to the patient's problems associated with hearing loss. It was our goal to use the HHIE as a pre- and post-treatment measure of change. As can be seen in Figure 2, patient and spouse had similar perceptions of the impact of the patient's hearing loss. During the second visit, the wife was trained to collect behavior tracking data. This consisted of the wife identifying three times during the day when she would be able to record how many times the patient had engaged in each of the identified behaviors. An example tracking sheet is shown in Table 1. The wife was provided with multiple tracking sheets for the weeks to come.

The third visit was conducted in order to obtain earmold impressions from the patient and to check on the wife's ability to collect the behavior tracking data. The patient did not have any problems with cooperating with the earmold procedure and the wife was tracking behavior appropriately. Depending on the circumstances, the activities of this third visit might be combined into the second visit. The patient's wife then tracked behavior data and mailed the weekly sheets to us for the next 4 weeks.

**Hearing Aid Fitting**

After 6 weeks of behavior tracking data, the hearing aid fitting was performed (fourth visit to the home). The hearing aid was preadjusted to the manufacturer's recommended settings and the response was verified in a hearing aid test box.

The Oticon Multifocus hearing aid incorporating two-channel (high- and low-frequency) adaptive compression was selected for the patient. This hearing aid combines the needed technology and fitting protocol to be used with a patient who cannot tolerate and/or cooperate with objective and subjective validation procedures. The hearing aid gain and compression ratio are dictated by the frequency composition and level of the input signal. The response is based on a set of compression ratios determined from average hearing losses at that particular level. This type of fitting protocol is essential because of the limitations that the patient's abilities and the home testing environment imposed on fitting verification options. The hearing aid response is adequate for individuals with mild to moderately severe hearing losses. This technology provides a convenient way to select a hearing aid based on threshold data for each patient. The adaptive nature of the hearing aid means that a volume control is not necessary. Although the Multifocus was chosen for this individual, there are numerous hearing aids that incorporate automatic signal processing and fitting strategies based on minimal threshold data.

The patient was fit monaurally with an ITE-style hearing aid. An ITE was selected because it is more difficult to remove than the behind-the-ear style of hearing aid and may aid in its retention. In addition, it was thought that a monaural fitting might make managing the hearing aid easier for the patient's wife, who would have sole responsibility for its maintenance and use.

The patient's wife was able to insert the battery into the hearing aid, insert the hearing aid into the patient's ear, and remove the hearing aid by the end of the fourth visit. A wearing schedule (Palmer and Mormer, 1997) was provided to the wife that instructed her to increase the time the patient wore the hearing aid each day over the next week. The fifth visit was a week after hearing aid fitting to ensure that the patient was tolerating the hearing aid and that the patient's wife was comfortable with its care. No problems were reported or noted at the 1-week follow-up visit. The wife called shortly after the follow-up visit to indicate that the hearing aid had stopped working. A sixth visit to the home revealed that the hearing aid was clogged with cerumen. The cerumen was removed and the patient's wife was reinstructed in caring for the hearing aid and in basic troubleshooting.

A 1-month follow-up appointment was conducted after the hearing aid was working again (seventh home visit). The HHIE was readministered to the patient and his wife at this time. The wife had been mailing in the behavior tracking data during the entire hearing aid fitting process (total of 14 weeks of tracking data). At the 1-month follow-up visit, it was noted that the patient was wearing his hearing aid approximately 15 hours per day without any complaints. The patient's wife indicated that she was comfortable with the care and use of the hearing aid and had not had any further difficulties. The
Figure 3 Tracking problem behaviors as a function of hearing aid use. Hearing aid treatment begins at the broken vertical line. Hearing aid treatment stops because of needed repair at the solid vertical line and starts again at the second broken vertical line. This withdrawal period is marked by an asterix (*).

The patient and his wife were asked to contact us if any problems arose in the future.

**Data Collected**

The problem behavior tracking and hearing handicap inventory pre- and post-treatment results are presented below.

Figure 3 provides five graphs. The data represent the baseline and treatment data for the patient. The top panel represents hours of hearing aid use as counted by the patient's wife. The bottom four graphs represent the number of problem behaviors per week (negative statements, pacing, repeating, and searching) that were counted. The first broken vertical line indicates when hearing aid intervention began (the patient was provided with a hearing aid). The next two lines indicate 1 week when the hearing aid was not used due to needed repair. After the repair (the second broken, vertical line), the hearing aid was used full time. It is evident from visual inspection that the patient was a compliant hearing aid user (approximately 15 hours per day) and that there was a reduction in all four problem behaviors after full-time hearing aid use. Although a withdrawal phase was not planned into the design of this evaluation due to ethical considerations, a short withdrawal phase was introduced due to the hearing aid being clogged by cerumen. The patient did not use the hearing aid for 1 week until a home visit could be arranged for repair of the hearing aid. It is interesting to note that the pacing, repeating, and searching behaviors showed a slight increase during the period of time that the hearing aid was not working followed by a consistent, maintained decrease in problem behaviors.

Figure 2 provides the pre- and post-treatment HHIE scores for the patient and care giver. The scale taps both emotional reaction to the hearing loss and situational difficulty. Scores of 18 percent or higher indicate a perceived hearing handicap that one would expect to impact daily communication. The care giver and patient indicated that the patient had a hearing problem on the pretreatment administration. Perceived hearing handicap is significantly reduced (change of more than 18.7%) for both the care giver and patient after several months of hearing aid use. The care giver no longer perceives any hearing handicap and the patient perceives minimal handicap (less than 18% in all categories).

At the end of the follow-up appointment, the patient's wife was asked a series of questions about the hearing aid intervention in order to provide an indicator of social validity to this process. Table 2 provides the care giver's answers to a set of seven questions. The patient's wife was very positive about the experience and clearly believes that the amplification has made a difference for her (in terms of problem behavior reduction) and for her spouse. In addition, the wife made a list of observations regarding the positive impact of the hearing aid in the journal that was provided to her. These comments included hearing normal noises in the house (furnace, etc.), hearing the turn signal in the car, turning down the television, turning down the car radio, hearing the mail being delivered, hearing the physician, asking the wife to lower her voice, enjoying church more, and talking with his wife and other people more. These are all quality of life issues that were not measured by the behavior counting. Several of the items appear to have put the patient more in touch with his day-to-day activities (mail arriving, television, church). The spouse was most pleased with the patient's
increased interest in communicating with her and others. This was a lack of behavior previously and therefore was not counted as a “problem behavior,” yet this lack of communicating had become a problem to the care giver.

COMMENTS

The clinical method presented in this paper employed novel methodology in the areas of on-site hearing evaluation and hearing aid selection and documentation of care giver identified problem behaviors as a measurement of treatment efficacy.

When fitting a hearing aid, the goal of the audiologist is to improve the patient’s quality of life by providing him/her with audibility. Ideally, the patient plays an active role in obtaining the objective and subjective measures used to achieve this goal. However, when a patient presents with a cognitive impairment, certain compromises may be necessary. All of the evaluation and remediation in this case was performed in the home. This ensured that the patient was in a familiar setting while undergoing testing. This may have aided in obtaining accurate audiometric data in a more timely manner.

The spouse may actually benefit from the use of the hearing aid more than the individual with the impairment. Communication may become a less stressful activity when the spouse is required to make less effort to make speech audible. Due to memory loss, the patient may experience short-term benefits of this “less stressful” communication. However, for the spouse whose memory is intact, communication may become a less anxious, more relaxed experience overall. Therefore, it is necessary to have the spouse take an active role in validating the perceived benefit of the hearing aid by providing subjective information. In this case, the spouse’s perceived benefit was evaluated through the weekly behavioral tracking, pre and post hearing aid HHIE-spouse scores, the hearing aid diary, and informal observation.

It must be acknowledged that this protocol is based solely on subjective assessment by the individual with AD and the care giver. As with any subjective assessment, the individuals’ biases cannot be controlled. Since the stated goal of this intervention was to impact the quality of life for the care giver and spouse, self-perceived benefit is probably the most appropriate measure, regardless of bias. It certainly would be possible to create a more objective measure while still conducting all testing within the home. Depending on the patient, it might be a measure of detection, recognition, or actual discrimination of sounds and words. Of course, the clinician must have a clear plan of action depending on the results of an objective assessment. Will the hearing aid be reprogrammed? What will the reprogramming be based on and how will the change be assessed?

REFERENCES


Table 2 Social Validity Questionnaire and Answers from the Care Giver

<table>
<thead>
<tr>
<th>Question</th>
<th>Response</th>
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<tbody>
<tr>
<td>Do you feel that wearing a hearing aid has improved your spouse’s ability to communicate?</td>
<td>Yes</td>
</tr>
<tr>
<td>Do you feel that the wearing of a hearing aid reduced the occurrence of any of the problem behaviors that you were counting?</td>
<td>Yes (repeating questions, negative statements, searching)</td>
</tr>
<tr>
<td>Upon your entrance into the study, did you feel that the researcher provided you with an accurate description of the study?</td>
<td>Yes</td>
</tr>
<tr>
<td>Has your spouse adapted to wearing the hearing aid?</td>
<td>Yes, he looks forward to wearing it. He missed the hearing aid while it was not working.</td>
</tr>
<tr>
<td>Do you feel comfortable putting the hearing aid in your spouse’s ear?</td>
<td>Yes</td>
</tr>
<tr>
<td>Do you feel comfortable putting the battery in the hearing aid?</td>
<td>Yes</td>
</tr>
<tr>
<td>How helpful was the audiologist in explaining the use and maintenance of the hearing aid?</td>
<td>Very helpful. I would not have been able to handle the aid without the instruction I was given.</td>
</tr>
</tbody>
</table>


APPENDIX A

Sample Behave-AD Questions
and Questions Added to Focus
on Communication

Now I am going to ask you questions about
your spouse’s problem behaviors. Please refer
to the answer choices given; for some
questions, I will ask you how often these
behaviors happen and how upsetting they are
for you.

1. Does your spouse ever mention that
someone is hiding or stealing things?
   No 0 = Not present
   Yes 1 = Does mention people are hiding
or stealing
   How often does he mention it? 0 1 2 3 4
   How upsetting is this to you? 0 1 2 3

2. Does your spouse ever say or do things
that would indicate that he does not think
your house is his home?
   No 0 = Not present
   Yes 1 = Does things like packs to go
   home; says “take me home”
   2 = Does he ever get angry about it?
   3 = Is violent when you try to
   prevent him from leaving?
   How often does he act suspicious/
   accusative? 0 1 2 3 4
   How upsetting is this to you? 0 1 2 3

3. Does your spouse ever say or do things
   that indicate that he is hearing voices?
   No 0 = Not present
   Yes 1 = He hides things so others will
not steal them; he hoards things
   in case others will not give them
to him (food, cigarettes, etc.), he
   accuses you of hiding things and
   doing things behind his back.
   How often does he hear things that are
   not there? 0 1 2 3 4
   How upsetting is this to you? 0 1 2 3

4. Does your spouse ever use uncharacteristic foul
   or aggressive language?
   No 0 = Not present
   Yes 1 = He ever use uncharacteristic foul or
   aggressive language?
   2 = Is he ever really angry when he
   uses this language?
   3 = Does he ever get really angry
   and have aggressive verbal
   outbursts clearly directed
toward any person?
   How often does your spouse have
   aggressive uncharacteristic outbursts or
   use uncharacteristically foul or abusive
   language? 0 1 2 3 4
   How upsetting is this to you? 0 1 2 3

5. Does your spouse ever have any
   aggressive verbal outbursts?
   No 0 = Not present
   Yes 1 = He ever use
   uncharacteristic foul or
   aggressive language?
   2 = Is he ever really angry when he
   uses this language?
   3 = Does he ever get really angry
   and have aggressive verbal
   outbursts clearly directed
toward any person?
   How often does your spouse have
   aggressive uncharacteristic outbursts or
   use uncharacteristically foul or abusive
   language? 0 1 2 3 4
   How upsetting is this to you? 0 1 2 3

Questions that were added to the Behave-AD
in order to address communication issues.

Talks and talks and you cannot stop him from
talking? 0 1 2 3 4
   How upsetting is this for you? 0 1 2 3

Seems apathetic or indifferent, or does not
care about anything anymore? 0 1 2 3 4
   How upsetting is this for you? 0 1 2 3

Has trouble using the telephone? 0 1 2 3 4
   How upsetting is this for you? 0 1 2 3

Shows noncompliance/makes negative verbal
statements 0 1 2 3 4
   How upsetting is this for you? 0 1 2 3

Do you feel that you have lost a
communicative partner? 0 1 2 3 4
   How upsetting is this for you? 0 1 2 3