

# Hearing Aids and Assistive Listening Devices in Long-term Care

## Prothèses auditives et aides techniques pour malentendants dans les établissements de soins prolongés

by • par

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### ABSTRACT

Studies in the past have reported poor use of amplification among institutionalized elderly people. Our perception, however, was that in our facility most residents who owned amplification devices used them regularly. The purposes of this study were to examine the use of hearing aids and assistive listening devices (ALDs) and some factors affecting successful amplification use in a long-term care population. We surveyed all residents ( $n = 115$ ) who owned one or more devices regarding when they used them. We recorded reasons for not using hearing aids. Of the 112 hearing aids owned by the residents, 70% were used every day, and an additional 12% were used regularly. Of the 40 ALDs owned, 88% were used regularly. We found that 95% of the hearing aids and devices were in good working order. Our results show that amplification can be used successfully by long-term care residents, probably as a result of the on-site audiological support.

### ABRÉGÉ

Dans le passé, des études ont révélé que l'amplification était peu utilisée chez les bénéficiaires en établissements. Les auteurs ont toutefois constaté que, dans leur centre, la plupart des bénéficiaires qui possédaient des prothèses auditives les portaient régulièrement. L'étude avait pour objet d'examiner a) l'usage des prothèses auditives et des aides techniques pour malentendants (ATM) et b) certains facteurs du succès de leur usage chez les bénéficiaires de soins prolongés. Les auteurs ont fait une enquête sur tous les bénéficiaires ( $n = 115$ ) qui possédaient au moins un appareil pour savoir quand ils les utilisaient. Les raisons pour lesquelles ils ne s'en servaient pas ont été notées. Sur les 112 appareils auditifs que possédaient les bénéficiaires, 70 % étaient utilisés tous les jours et 12 % l'étaient régulièrement. Sur les 40 DPM possédés, 88 % étaient utilisés régulièrement. D'après les constatations des auteurs, 95 % des prothèses et dispositifs fonctionnaient bien et l'amplification pouvait être employée avec succès chez les bénéficiaires de soins prolongés, probablement parce que ces derniers recevaient un soutien audiolgique sur place.

### KEY WORDS

hearing aids • assistive listening devices • ALDs • long-term care • extended care • chronic care • elderly people • hearing loss

There is a high incidence of hearing loss in residents of long-term care facilities. According to Schow and Nerbonne (1980) 82% of this population is hearing impaired. However, it is reported that only 4-10% of nursing home residents use hearing aids with any regularity (Hedner, Broms, Harris, & Steen, 1987; Schow, 1982; Thibodeau & Schmidt, 1988). This is a concern for a variety of reasons. Studies have shown that hearing-impaired elderly individuals do worse on tests of cognition if they do not use amplification than if they do (Ohta, Carlin, & Harmon, 1981; Weinstein & Amsel, 1986). We also know that even mild hearing loss can cause tremendous difficulties hearing in small groups or when there is any background noise (Bergman, 1985). It is recognized that hearing loss is associated with conditions such as depression and cognitive dysfunction (Mulrow et al., 1990; Peters, Potter, & Scholer, 1988). Withdrawal and avoidance of social interaction can lead to loneliness, isolation, and boredom. Therefore efforts to alleviate the effects of hearing loss need to be considered carefully. The provision of amplification by means of a hearing aid or assistive listening device can be an excellent intervention (Mulrow et

al., 1990). It can help overcome disability and, as a result, have a profound effect on the patient's quality of life.

Very few studies have been done concerning the use of hearing aids by residents in long-term care. Fewer still have looked at the use of assistive listening devices (ALDs). Unfortunately much of what has been published has shown disappointing results (Alberti, 1976; Hedner et al., 1987; Purves & Brooks, 1987; Schow, 1982).

The lack of adequate and consistent on-site audiological support has been recognized as an important factor contributing to poor use of amplification (Lubinski, Stecker, Weinstein, & Volin, 1993; Purves & Brooks, 1987; Schow, 1982). A review of the literature indicates that one of the prime reasons for amplification not being used is that it is broken. Very high rates of equipment malfunction occur in long-term care facilities (Bradley & Molloy, 1991; Thibodeau & Schmidt, 1988). This is exacerbated because malfunction often goes unreported, likely as a result of insufficient audiological resources.

The outlook for wide use of hearing aids is bleak for a number of additional reasons. There are negative attitudes towards hearing aids because they are associated with aging, resulting in low

levels of motivation to use an aid. Low motivation may also be due to a lack of opportunities for meaningful communication for many of the residents, as well as the presence of surprisingly high levels of background noise in many facilities. Poor health is probably another important factor in the rejection of hearing aids by residents.

Yet some individuals are able to use amplification on a regular basis. One report (Alberti, 1976) indicated that when people entered long-term care facilities as experienced hearing aid users they usually continued to wear their aids. However, those residents who were fitted with a hearing aid for the first time after their admission to long-term care were less likely to become successful users.

We thought that we were achieving better results because of the scope and structure of our service. The audiology staff are on-site and have been an integral part of the interdisciplinary team for several years. This is in contrast to a consultation model that is often used in other facilities. In addition to providing general audiology services, we have an on-site hearing aid dispensary and a half-time hearing aid technician who provides service on the residents' units.

The purpose of this study was to answer the following questions:

1. How often did long-term care residents use amplification (i.e., their hearing aids and assistive listening devices)?
2. What was the rate of amplification device malfunction?
3. What factors were associated with use and non-use of hearing aids?

## Method

### Participants

The participants were 115 residents in a long-term care facility which is attached to a large acute care teaching hospital. The participants were all those who owned hearing aids or ALDs. The age range was 65-101 years with a mean age of 82 years. There were 103 male and 12 female participants. The unusual male to female ratio is because this facility is primarily for veterans. Physical health and cognitive functioning amongst the residents varied widely. There were varying degrees of resident ability to handle their hearing aids and devices independently. The general health of these residents at the time of the study may have been slightly better than in other long-term care facilities.

### Procedure

**Survey.** The audiology staff surveyed all residents who were on record as owning an amplification device such as a hearing aid, a personal amplifier (e.g., a PockeTalker), or other ALD (e.g., a TV or telephone amplifier). The survey was carried out over a three-week period. Since some residents owned more than one device, the total number of amplification devices was 154. In the survey, we asked all residents how often they used

their devices: (a) all day every day, (b) a part of every day, (c) not daily but regularly for specific situations such as recreational activities, or (d) not at all. When devices were not used, we recorded the reasons why as given by the patient, a family member, or caregiver.

**Listening check.** We did a systematic check to see whether the equipment was in working order, partly to see if this accounted for non-use, and partly to see whether nursing staff and residents had been communicating breakage problems to the audiology staff effectively.

## Results and Discussion

### Rate of Equipment Malfunction

We found a very low rate of broken hearing aids. As can be seen in Table 1, 93% of the hearing aids were working. All the PockeTalkers and other ALDs were also in good working order. We attribute this to consistent audiological follow-up and increased awareness of hearing aids and hearing loss by nursing staff and other caregivers.

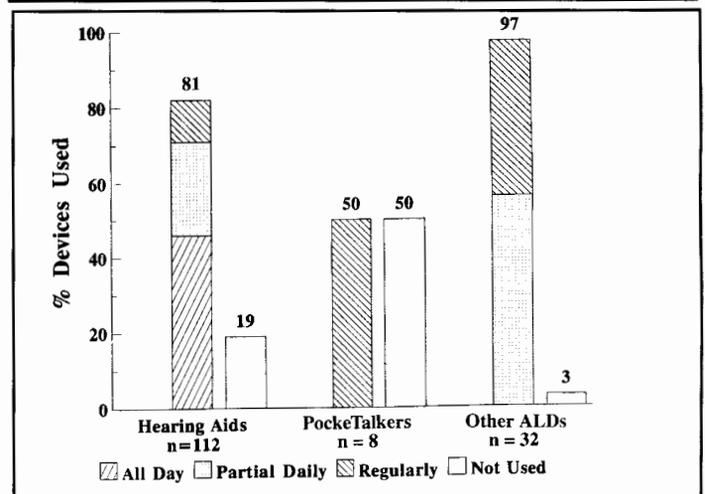
**Table 1. Rate of equipment malfunction.**

	Amplification Devices		
	Working	Broken	n
Hearing Aids	93%	7%	112
PockeTalkers	7%	0%	8
Other ALDs	100%	0%	32

### Use of Amplification

The frequency of use of amplification is shown in Figure 1. The majority of patients used their hearing aids daily and an additional 11% wore their aids regularly for specific situations, such as family visits. Only 19% of the hearing aids were not used at all.

**Figure 1. Usage patterns of amplification devices.**



The most common reason for rejection of an aid was lack of motivation (see Table 2). We think that low motivation is a complex issue influenced by a number of factors. These may include poor physical and mental health, the possible presence of psychological disengagement, prejudice against hearing aids, excessive background noise in the facility, and lack of anything meaningful to listen to.

**Table 2. Reasons reported by the patient, a family member, or caregiver for non-use of hearing aids.**

Reasons	n
unmotivated/unwilling to use aid	12
lost aids	2
aid broken	2
aid not helpful	3
unable to use aid	1
felt aid was not needed	1
Total =	21

As for the ALDs, there were only eight people who owned PockeTalkers; half wore them regularly, and half not at all. All the other ALDs but one were used daily or regularly. These patients used their devices for visitors (i.e., family, friends, staff), as well as for church and legion activities.

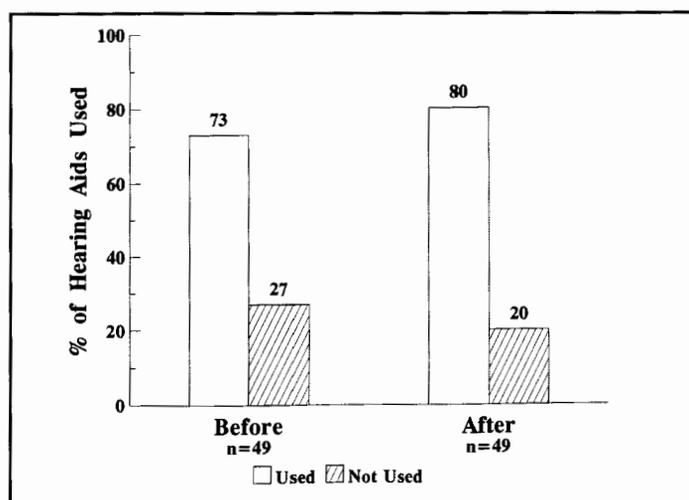
The most commonly used ALDs were TV headphones. The use of TV headphones has been encouraged on some nursing units in our facility so that residents do not turn the volume too high, disturbing other residents and staff. There were 18 residents with TV headphones: 15 were used every day, two regularly, and one not at all. There were four people with telephone amplifiers. They were used daily by two residents and regularly by two.

#### Factors Relating to Use versus Non-use of Hearing Aids

**Fitting before or after admission to long-term care.** Alberti (1976) reported that most people already using hearing aids when they enter a long-term care facility continue to use them, whereas those fitted after admission have significantly less success, to the point where he suggested that it may not be appropriate to recommend a hearing aid for such residents.

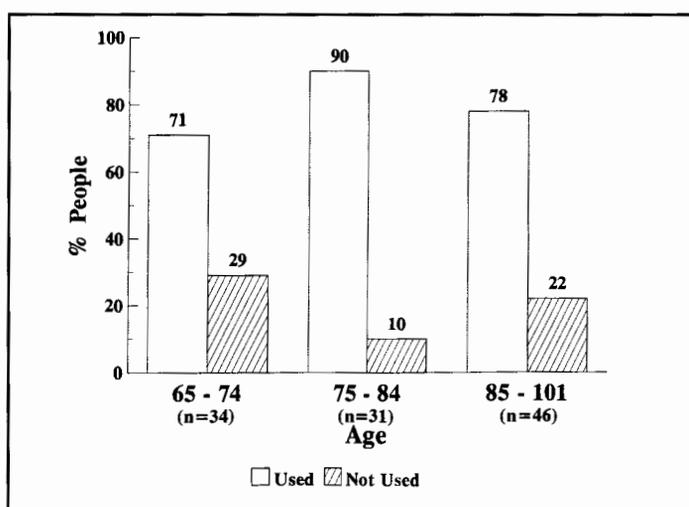
Our results do not agree with his report (Figure 2). Both of our groups had very similar user rates. That is, 80% of those who received their hearing aid after entering our facility and 73% of those who owned their aid prior to admission used them. We attribute this mainly to frequent, consistent follow-up and support by audiology staff to both residents and nurses. We have also found that, as a result of having an audiologist on the interdisciplinary team, nurses and other caregivers have become more knowledgeable about the function of hearing aids and more helpful to the residents using them.

**Figure 2. Effect of timing of hearing aid acquisition: before or after admission to long-term care facility.**



**Chronological age.** We divided the residents into three age groups. As can be seen in Figure 3, there was no consistent trend in hearing aid use as a function of age. Therefore chronological age should not be a deterrent to the recommendation of a hearing aid. This is in agreement with the findings of Parving and Philip (1991).

**Figure 3. Effect of age on use of hearing aids.**



**Degree of hearing loss.** The two measures we used to determine the degree of hearing loss were speech reception threshold (SRT) and speech discrimination scores (CID W-22 word lists) in the better ear. Table 3 shows that the group who used their hearing aids had significantly worse SRT [ $t(92) = 3.08, p < .01$ ]

and speech discrimination [ $t(92) = 2.63, p < .01$ ] scores than those who did not use their aids.

Since the level of average conversation is about 40-45 dB HL, it appears that one is more likely to achieve a successful hearing aid fitting with an individual who has difficulty hearing speech. We are not suggesting that people with mild hearing loss who are interested in amplification be denied it. Rather, our findings underline the need for audiologists and hard-of-hearing people to work together to clarify need for and degree of motivation to use amplification.

**Table 3. Mean SRT and speech discrimination score in the better ear for hearing aid users and non-users.**

	SRT		Speech Discrimination	
	Mean	(SD)	Mean	(SD)
<b>Users</b> n = 22	48 dB HL	(17)	67%	(25)
<b>Non-users</b> n = 72	36 dB HL	(12)	82%	(17)

If the resident chooses not to try a hearing aid, other options are available. We provide ALDs and room amplification systems when residents are involved in individual and group activities. We also alert caregivers to the existence of hearing loss and we teach them good communication strategies for use in everyday situations.

### Summary and Conclusions

Our conclusion is optimistic in that with adequate audiological support and support from other caregivers, there is a high rate of use of hearing aids and other amplification devices. Furthermore, it is possible to ensure that virtually all equipment is maintained in good working order. Specifically:

1. Eighty-four percent of those who owned hearing aids or other devices used them.
2. Ninety-five percent of devices were in good working order.
3. Of the factors studied in relation to hearing aid use, the effects were: (a) greater hearing loss is associated with greater use of hearing aids, (b) time of fitting in relation to time of admission to long-term care was unrelated to hearing aid use, and (c) age was unrelated to hearing aid use.

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