

■ Audiologic Rehabilitation Needs of Older Adults with Hearing Loss: Views on Assistive Technology Uptake and Appropriate Support Services

■ Les besoins des aînés malentendants en réadaptation audiolégique: opinions sur l'acceptation des technologies d'aide et des services appropriés de soutien

Mary Beth Jennings

Abstract

This article explores how ageism, stigma, and normalization of hearing loss impact on identification and acknowledgement of hearing loss and the uptake of assistive technology by older adults.

Identification and acknowledgement of hearing loss can be delayed because the gradual nature may create a lack of awareness of the presence of hearing loss. The impact of hearing loss will be minimized if communication needs are decreased, or when other physical changes are considered to be more serious. Elders, healthcare providers, physicians, government ministries and third-party insurance providers are typically unaware of or minimize the seriousness of hearing loss. There is also a lack of awareness of available services and support groups. The result is the creation of barriers to accessing services.

The numbers of elders who are using assistive technologies is low compared to the number who could benefit from them. Stigma related to hearing aids may no longer be a primary reason for non-use. Barriers to use include lack of referral, physical changes that make handling devices more difficult, and costs versus benefits of use. Elders require information prior to entering into rehabilitation, selection of technology for ease of use, and comprehensive follow-up geared to their specific needs. Participation in rehabilitation programs and support groups can facilitate the successful management of communication and identity and assist in the de-stigmatization of elder hearing loss.

Abrégé

Le présent article se penche sur l'incidence de la discrimination fondée sur l'âge, des préjugés et de la normalisation de la surdité sur l'identification et la reconnaissance d'une perte de l'ouïe ainsi que sur l'acceptation des technologies d'aide par les personnes âgées.

Il est possible qu'un retard d'identification et de reconnaissance d'une perte d'audition soit attribuable à la nature graduelle d'un tel trouble, qui ne se fait pas remarquer d'emblée. L'incidence d'un tel trouble peut être négligé si les besoins en matière de communication sont moindres ou si d'autres problèmes d'ordre physique sont jugés plus graves. Les aînés, les intervenants du domaine de la santé, les ministères et les compagnies d'assurance ne sont généralement pas informés de la gravité de la perte auditive ou en minimisent l'importance. Ils pourraient aussi ne pas connaître les services et les groupes de soutien offerts. En conséquence, la personne atteinte d'un trouble d'audition a de la difficulté à accéder à ces services.

Le nombre d'aînés qui utilisent les technologies d'aide est faible comparativement au nombre d'aînés qui pourraient en bénéficier. Il se peut que les préjugés liés aux appareils auditifs ne soient plus la première cause de leur non-utilisation. Parmi les obstacles à leur utilisation, on retrouve le manque de référence vers les services appropriés, les changements physiques qui rendent la manipulation des appareils plus difficile et les coûts par rapport aux avantages perçus.

Les aînés ont besoin de renseignements avant d'entreprendre un suivi en réadaptation et de choisir une technologie facile à utiliser. Ils doivent aussi bénéficier d'une analyse exhaustive afin de déterminer leurs besoins particuliers. La participation à des programmes de réadaptation et à des groupes de soutien peut faciliter la gestion efficace de la communication et l'affirmation de l'identité en plus d'aider à anéantir les préjugés liés à la perte auditive chez les aînés.

*Mary Beth Jennings
National Centre for
Audiology
The University of Western
Ontario
London, ON Canada*

Key Words: audiologic rehabilitation, older adults, assistive technology, stigma

Introduction to Older Adults with Hearing Loss

Seniors are the most rapidly growing age group in Canada. The number of adults over the age of 65 years is expected to grow from 3.5 million in 1996 to an estimated 6.9 million by the year 2021 (Canadian Council on Social Development for the Division of Aging and Seniors, 1998). According to Statistics Canada (2002), the population of persons aged 80 years and older increased 41% between 1991 and 2001 and is expected to increase an additional 43% to an estimated 1.3 million persons between 2001 and 2011. Hearing loss is one of the most common chronic disabilities for older adults and the prevalence of hearing loss increases with age (Health & Welfare Canada, 1988; National Council on the Aging, 1999; Weinstein, 2000; Willott, 1991). Obviously, the number of older adults with hearing loss will continue to increase dramatically as the older population increases.

Hearing loss in older persons may be attributed to any number of causes. Typically, the hearing loss exhibited in this population is permanent and involves a gradual decrease in hearing sensitivity at higher frequencies (e.g., above 3000 Hz) (Hnath Chisolm, Willott, & Lister, 2003). Even those persons with only mild hearing losses will have difficulty understanding speech in sub-optimal conditions of noise interference (Dubno, Dirks, & Morgan, 1984). In addition to its effects on speech understanding, acquired hearing loss has both social and psychological implications (Cacciatore et al., 1999; Eriksson-Mangold & Carlsson, 1991; Eriksson-Mangold & Erlandsson, 1984; Meadow-Orlans, 1985; Mulrow et al., 1990a; 1990b; National Council on the Aging, 1999; Noble, 1996; Rutman, 1989; Scherer & Frisina, 1998). Typically, we define older adults as being anyone aged 65 or older. This means that the period of time within which someone is considered to be an older adult can span 30 or more years. Because older adults are a heterogeneous population, there will be differences in the impact of hearing loss related to the older individual's age, among other variables.

The use of hearing aids is important but will not solve all of the problems that the hearing loss creates. Persons with hearing loss need to understand that hearing aids assist with hearing and understanding, but even those persons who wear hearing aids on a regular basis may still have socially disabling levels of communication difficulties associated with the hearing loss (Smeeth et al., 2002; Weinstein, 2000). Benefits of using hearing aids, such as improved relationships with family members, greater independence and security, certainly outweigh drawbacks such as cost of the instrument and its upkeep (e.g., National Council on the Aging, 1999). Appropriate educational support through audiology rehabilitation programs designed specifically for this age group can support successful adaptation to the use of assistive technology.

Surveys of audiologists' provision of audiology rehabilitation services in the United States in 1980 and 1990 (Schow, Balsara, Smedley, & Whitcomb, 1993) found that the majority of respondents provided individual hearing aid orientation and that they routinely advised selected clients about assistive listening devices. A minority of audiologists reported that they provided group audiology rehabilitation services or communication training. A minority also used self-assessment questionnaires routinely and regularly dispensed assistive listening devices. A more recent survey of audiology rehabilitation services other than hearing aid fitting and orientation (Prendergast & Kelley, 2002) found that the majority of respondents provided information on assistive listening devices, communication strategies training, and information/education counseling. These services were reported to be provided on an informal basis, when the client needed the information, with only 5% of respondents reporting that they provided group audiology rehabilitation services. The typical intervention currently available in Canada is restricted to audiology assessment, hearing aid assessment, fitting, and orientation. In spite of our knowledge of the impact of hearing loss and the needs of older adults we have seen few changes in the services available in Canada. Where changes have occurred, they may not be perceived in a positive way. For example, recent changes in Ontario for provincial funding of audiology services have created confusion for older adults who are uncertain about the process for obtaining services and the potential charges that may be incurred.

How can we best meet the audiology rehabilitation needs of this significant group in Canadian society? This paper will explore how ageism, stigma and normalization of hearing loss impact on the identification and acknowledgement of the loss and create barriers to the uptake of assistive technology. A plan for refocusing of attitudes and services will be described in order to better meet the needs of this population in Canada.

Identifying and Acknowledging the Hearing Loss

The identification and acknowledgement of the presence of a hearing loss has been described as a process that persons with hearing loss and their significant others move through over an extended period of time (Hétu, Jones, & Getty, 1993; Kyle, Jones, & Wood, 1985). In fact, models used to describe health-related behaviour change can be applied to hearing loss (Noh, Gagné, & Kaspar, 1994). For example, within the Transtheoretical Model, individuals move through five stages over a period of time as they progress toward adopting and maintaining health behaviour change (Prochaska, Norcross, & DiClemente, 1984). Following the Transtheoretical Model, an individual would begin in the *pre-contemplation stage*, that is, a period of time when the individual is unaware of the hearing loss and is not

thinking about consulting a hearing healthcare provider. The individual would then move into *contemplation*, that is a time when the individual is aware of the hearing loss and is seriously thinking about consulting but has not made a commitment to take action. This stage would be followed by *preparation*, a time when the individual intends to consult within the next month and may have taken some steps, such as finding out what financial coverage might be available to help cover the cost of a hearing aid, and making an appointment for an audiology assessment. In the *action* stage, the individual would consult and obtain a hearing aid. During *maintenance*, the individual has been using the hearing aid for at least six months and the goal is for the person to keep using the hearing aid and not give it up. Finally, *termination* is the stage when the individual is consistently using and is unlikely to stop using the hearing aid.

Many barriers to identification of a hearing loss exist for the older adult and these may prolong the process of acknowledgement of the loss. Some of these barriers are (a) a lack of awareness of the loss of hearing, (b) a change in communication needs that minimizes the impact of the hearing loss, (c) a number of other changes in health status that may be considered to be more serious than the hearing loss, and (d) a minimization of the seriousness of hearing loss by healthcare providers, government ministries, and third-party health care insurance providers that creates barriers to accessing services. Each of these barriers will be discussed in greater detail.

Older adults may have a hearing impairment that gradually becomes worse over time and it may take many years before the impact is recognized. Garstecki and Erler (1995, p. 44) suggest that elders who acquire hearing loss do so gradually and learn to compensate by "mechanical means (e.g., increasing volume controls) and social manipulation (e.g., asking others to repeat)." They also suggest that older adults are more likely to rely on their own intuitive knowledge of hearing and personal experience and this knowledge is likely to be filled with myths and misconceptions. Generally, there is poor insight into the existence and impact of hearing loss, and substantial denial (Garstecki, 1990; Gilhome Herbst, Meredith, & Stephens, 1991). If lifestyles become increasingly restricted and/or routine, communication opportunities may become more limited, and therefore, the need and justification for hearing well is reduced and it is viewed as a minor problem or mistaken for absent-mindedness or senility by both those with the hearing loss and others including health care providers (Humphrey, Gilhome Herbst, & Faurqi, 1981; Karlsson & Rosenhall, 1998; Oyer & Oyer, 1985). Hearing loss, along with other functional changes and decline, may be regarded as a condition that is simply a part of getting older and must be lived with and accepted, with those changes caused by disease taken more seriously (Garstecki, & Erler, 1995; Gleitman, Goldstein, & Binnie, 1993; Humphrey et al., 1981; Rutman, 1989;

Weinstein, 2000). Problems encountered with communication may easily be attributed to the specific environments in which the communication has taken place (Jones, Kyle, & Wood, 1987). These can all be factors in a delay in seeking assistance (Griffing, 1992).

Elders with hearing loss report significantly more depressive symptoms, lower self-efficacy, more feelings of loneliness, more social isolation, a smaller social network and greater dependence than their normally hearing peers (Cacciatore et al., 1999; Kramer, Kapetyn, Kiuk, & Deeg, 2002; Meadow-Orlans, 1985; National Council on the Aging, 1999; Scherer & Frisina, 1998). Hearing loss can also exacerbate the impact of other impairments and disabilities (Kempen, Verbrugge, Merrill, & Ormel, 1998). One would hope that by increasing awareness of the impact of hearing loss, elders might be encouraged to consult for assistance with hearing problems. Unfortunately, a common response to experiencing an acquired hearing impairment is a reluctance to acknowledge the impact of the loss on everyday activities (Hallberg & Barrenäs, 1993; Hallberg & Carlsson, 1991; Hétu, Lalonde, & Getty, 1987; Hétu, Riverin, Getty, Lalande, & St. Cyr, 1988; Jones, et al., 1987).

Hétu (1996) proposed that difficulty with acknowledging and disclosing a hearing loss may have close ties to Goffman's (1963) theory of stigma. Stigma has been described as having "at least 2 fundamental components: 1. the recognition of difference based on some distinguishing characteristic, or 'mark'; and 2. a consequent devaluation of the person" (Dovidio, Major, & Crocker, 2000, p. 3).

There are two main ways in which persons with stigma come to recognize the presence of the stigma. The first is through self-recognition, that is, the person recognizes that he or she is different from normal and shares similarities with a certain stigmatized group. The second is through the reactions of others to the difference. The more obvious the difference is, and in the case of hearing impairment the more disruptive the loss is to communication, the more likely the interactions with others will be affected (Jones et al., 1987). The person with hearing impairment may come to acknowledge that his or her behaviour has fallen below the standard that is considered to be acceptable in society and must then either accept or reject that the hearing impairment is evidence of their difference from the norm (Goffman, 1963, Hétu, 1996; Smart & Wegner, 2000).

Social interactions are crucial for maintaining self-image and social roles (Noble, 1983). The elder with hearing loss and significant others may use strategies in an attempt to ensure that the hearing loss does not negatively effect social interactions. In doing so, he or she is trying to manage a "spoiled identity" (Goffman, 1963; Noble, 1983). Insecurity in social settings and diminished hearing for contextual sounds may cause a perceived loss of control, which may also induce stress reactions

(Eriksson-Mangold & Carlsson, 1991; Eriksson-Mangold & Erlandsson, 1984). Control appears to be an important construct for the elderly as they deal with changes in social roles and other life transitions (Schieman, 2001).

Recent views of stigma (Dovidio et al., 2000) suggest that it is contextual and dynamic in its nature. What is seen as a stigma at one moment in one environment, with one particular group of people, may not be considered a stigma at another moment in another environment with another group of people. In order for stigmatization to occur, there must be an agreement that the recognizable difference is one that is undesirable (Coleman, 1997). Stigma is not only interpersonal, but it is also a collective and cultural phenomenon.

Within the population of elders with hearing impairment, there is often a comparison with others to see whose hearing loss is worse and who is having greater difficulty. There is a tendency to compare oneself to one's neighbour and to decide who needs assistance and who does not. Persons with greater difficulty are likely to become socially excluded from card parties and other social gatherings. By stigmatizing others within their own stigma group, the person can enhance his or her self-esteem (Dovidio et al., 2000).

Our beliefs about elders with hearing loss may be influenced by viewing the persons as having certain characteristics believed to be characteristics generalized to all elders with hearing loss as opposed to the specific characteristics of the individual themselves (Dovidio et al., 2000; Fiske & Neuberg, 1990). Turner, Hogg, Oakes, Reicher, & Wetherell (1987) suggest that understanding stigma requires knowledge of both the interpersonal and inter-group identity. This information affects how individuals process and interpret information, make attributions and decide what their motives are. For example, a person may know that it can be difficult to communicate with a person who has a hearing loss. When this person encounters a person with a hearing loss and has a successful conversation in a quiet environment, he or she may be more willing to interact with a hearing impaired person if they can have a conversation in a quiet environment.

Gleitman et al. (1993) suggested that negative attitudes about being hearing impaired are the result of the views of society towards those with hearing impairments, especially the elderly. Their study showed that attitudes toward youth and good health influenced scores on hearing handicap scales. For middle-aged adults, an interaction between hearing impairment, emotional reaction and self-esteem suggested that psychological reactions to hearing impairment resulted from societal pressures on this group to remain young and healthy even as they age. Hearing impairment, one of the signs of aging, may threaten the feelings of youthfulness and self-esteem in middle-aged adults (Gleitman et al., 1993; Zebrowitz & Montepare, 2000). The threat of hearing impairment to self-image of middle-

aged adults may be due to society's characterization of people on an aging continuum. As people age, they tend to be characterized by a decrease in physical capacities and intellectual decline (Bandura, 1997). Adults who deny they have a hearing impairment reflect the stigma and attitude they and others have towards hearing impairment. This attitude may be that having a hearing impairment is socially unacceptable or that being hearing impaired threatens their self-image of being young, healthy, competent and smart.

Humphrey et al. (1981) suggest two determinants in help-seeking: the severity of the impairment and the onset of hearing impairment before reaching retirement age when the loss is not expected. Individuals of post-retirement age expected hearing impairment to be an inevitable part of growing older and as such accepted more restricted lifestyles that reduced the need for good hearing. Humphrey et al. (1981) suggest that this group was less likely to seek assistance for their hearing impairment. Mahoney, Stephens, and Cadge (1996) found that only a minority of elders were self-motivated to seek assistance related to hearing difficulties, with the majority, especially those who are older, reporting a family member had persuaded them to consult a doctor.

The Health Belief Model (Janz & Becker, 1984; Weinstein, 2000) suggests that in order for the elder with hearing impairment to become involved in any intervention: 1) the perceived threat of the hearing impairment must be great, 2) the perceived benefit to becoming involved in assessment and rehabilitation must outweigh the barriers, and 3) the person must believe that he/she is capable of acting on the recommendations of hearing health care professionals.

A "precipitating" (McSpadden, 1997) or "salient" (Hansen, 1998) event, such as not being able to participate in a conversation in a noisy environment, may provide the impetus for elders to consult and seek assistance from an audiologist. This event may be "embarrassing, painful and/or personally and perceptually diminishing" (McSpadden, 1997, p. 61), or may be an accumulation of years of comments by others and self-observation (Hansen, 1998). Hansen (1998) suggested that gaining an understanding of this event and acknowledging that blame cannot be put on anyone else for the problem is the key to giving the person permission to move forward with rehabilitation.

Acceptance is considered to be an important step in seeking assistance to ameliorate the problem (Goffman, 1963; Hétu, 1996). Acceptance here is defined as accepting the existence of the hearing impairment and the stigmatization associated with the hearing impairment in order to seek out solutions to listening and communication difficulties. It may take the individual many years to reach the point where he or she is ready to consult about these difficulties and to actively seek ways to deal with communication difficulties (e.g., Thomas & Gilhome Herbst, 1980).

Unfortunately, once the person has reached the point where he or she is ready to consult about the hearing loss, barriers may preclude him or her from receiving the services needed. Studies carried out in the Netherlands and Denmark found that between 11% and 71% of elders report that they had consulted their general practitioner about their hearing difficulties (Biering-Sørensen, Christensen, Sørensen, & Parving, 1997; Diujvestijn, Anteunis, Hendriks, & Manni, 1999; Van den Brink, Wit, Kempen, & van Heuvelen, 1996; Wensing, et al., 2001). Of those who did seek assistance, between 1% and 45% were referred to an otolaryngologist, audiologist, or hearing aid specialist (Biering-Sørensen et al., 1997; Duijvestijn et al., 1999; Wensing et al., 2001). In Wensing et al.'s (2001) study, only 27% were advised of the possibility of a hearing examination and 13% reported they had received a hearing test.

A typical stereotype of the unhealthy, incompetent, elder person that includes the presence of hearing loss may lead to a lack of recognition of the actual impact that a hearing impairment has on the individual and his or her communication partners. These impacts include strain on family relationships, limitations to activities, interference with independent living, decreased safety in the home and public environments, and interference with accurate medical diagnosis, treatment, and management (Health & Welfare Canada, 1988; National Council on the Aging, 1999; Weinstein, 2000). This lack of recognition leads to a minimization of the seriousness of hearing impairment that, in turn, results in elders not seeking assistance or being prevented by others from obtaining the assistance they need (Gilhome Herbst et al., 1991; Humphrey et al., 1981). This also decreases the likelihood that they will seek assistance in the future. When we do this, we are imposing social control and restriction in physical and social mobility and access to services that allow the elder to maximize his/her communication potential (Coleman, 1997).

Complicating matters further, elders may not know whom they should consult other than their general practitioner. There is a general lack of awareness of hearing health care service providers, and of the differences between a hearing instrument practitioner and an audiologist. Cost coverage for services differs from province to province in Canada. Recent changes in coverage in the province of Ontario have caused confusion for elders who are no longer certain how and when the government or third party insurance pays for hearing tests, assistive technologies and support services, and when they must be paid for out of pocket. Services beyond the assessment of hearing loss and prescription and fitting of hearing aids have typically not been covered and, if they are accessed, are paid for by the end user. For those on limited incomes, the cost of services has created barriers to obtaining essential services.

In summary, there are numerous barriers and resulting implications to the identification and acknowledgement of hearing loss in elders. Due to its gradual and progressive nature, elders may be unaware that they do indeed have a hearing loss. If the communication needs of elders are decreased, the impact of the hearing loss will be minimized. Elders encounter many changes as they grow older and other changes may be considered to be more serious than the hearing loss. There may be a reluctance to acknowledge the impact of the loss once it has been identified. Healthcare providers, government ministries and third-party health care insurance providers may be unaware of or minimize the seriousness of hearing loss, and this creates barriers to accessing services. These groups are typically unaware of the services and support groups that are available for elders with hearing loss, including the role of audiologists in assessment and rehabilitation and consumer organizations such as the Canadian Hard of Hearing Association. If the older adult successfully overcomes these barriers, they will encounter a new set of barriers related to obtaining and using assistive devices.

Obtaining and Using Assistive Technology

Barriers to hearing aid and other assistive device use in the elder population are multifaceted. These barriers may be related to health care professional non-referral, physical changes that make it more difficult for elders to handle devices, the efficacy of the device, the stigma of device use, and the costs versus the benefits of using devices. The implications of not using assistive devices when they are warranted range from negative effects on interpersonal relationships to lack of safety and accessibility in private and public places.

According to Statistics Canada (1992), of all adults with self-reported hearing difficulties (including those who are deaf), 26.95% report using hearing aids, 30.3% report using technical aids, 31.5% report using volume controls on telephones, and 2.6% report using other types of amplifiers. These statistics highlight the relatively low levels of assistive device use by those who require them and could benefit from their use.

Of the elders who consulted about their hearing difficulties, between 23% and 55% were advised to obtain a hearing aid, and 14% received advice on various other items (Fino, Bess, Lichtenstein, & Logan, 1992; Gilhome Herbst et al., 1991; Humphrey et al., 1981; Wensing et al., 2001). Fino et al. (1992) found that 67% of those advised to use hearing aids declined. Between 8% and 48% of elders report owning hearing aids (Duijvestijn et al., 1999; Karlsson & Rosenhall, 1998; Smeeth et al., 2002; Stach, Loiselle, & Jerger, 1991; Van den Brink et al., 1996), with slightly more men than women reporting hearing aid use (Wensing et al., 2001). Use of devices tends to decline with increasing age (Karlsson & Rosenhall, 1998; Stach et al., 1991). The earlier a person is fit with hearing aids, the better their chances are of

being successful hearing aid users (Brooks, 1989; Salomon, Vesterager, & Jagd, 1988).

These numbers indicate that not only are elders not being regularly referred for hearing aid evaluation, but also of those who are referred, only small numbers followthrough with this advice. The numbers also suggest that elders are not being regularly referred for information and consultation on assistive technologies that assist with safety in the home (e.g., visually alerting systems for smoke detectors, doorbells and telephones), ease of use of the telephone (e.g., amplified telephones) and television (e.g., assistive listening devices for independent control of volume) and accessibility in public places (e.g., assistive listening devices that are used in theatres, concert halls, places of worship).

Of those who do follow through with advice to obtain hearing aids, between 8% and 60% of elder hearing aid owners report using them regularly (Smeeth et al., 2002; Wensing et al., 2001). Kochkin (2000) found that the proportion of hearing aids owned but not worn ranges from 5% in the first year to around 30% in the hearing aids that are 9 years of age or older. These numbers suggest that of those who have hearing aids and could benefit from their use, only a small number are using them regularly and a large number have abandoned these devices.

Physical changes such as decreased manual dexterity and vision problems make it more difficult for elders to handle hearing aids and other assistive devices (Brooks & Hallam, 1998; Fino et al., 1992; Garahan, Waller, Houghton, Tisdale, & Runge, 1992; Griffing, 1992; Kochkin, 2000; Salomon et al., 1988; Weinstein, 2000). These devices are relatively small and have small controls and small batteries which may be difficult to handle and to see. Modifications to lighting, print size in written information, and controls on hearing aids and other assistive technology may be needed to facilitate successful device use (Erber & Heine, 1996; Schow, 1982; Smedley & Schow, 1990; Thibodeau & Schmitt, 1988).

Stigma may be associated with the visibility of assistive devices (Coleman, 1997; Goffman, 1963) and the image that these devices represent. Images in the media do not portray persons with disabilities and elders in a positive light. There continues to be a plethora of advertising images that portray what is deemed to be acceptable in terms of physical and youthful characteristics, whether or not these ideals are actually endorsed by those in society (Crocker, 1999). Those who depart from this acceptable *ideal* become viewed as socially unacceptable. Hearing aids have been considered to be a visible stigmatizing mark of elder hearing impairment (Crocker, Major & Steele, 1998). Images of elders who use hearing aids range from the active younger elder who wears the *invisible* hearing aids in hearing industry advertising to objects of ridicule who wear highly visible body-style hearing aids and need to be shouted at to be understood. Those who opt for the smallest hearing instruments on

the market ultimately live in fear of being found out by other means (Coleman, 1997). Crocker et al. (1998) argue that visibility and controllability are important dimensions of stigma. Hearing aids are just one visible mark of what might otherwise be an invisible stigma (Crocker et al., 1998). By not wearing hearing aids when they are needed, individuals may be attempting to distance themselves from the stereotype of hearing aids linked to aging; that is, if they do not wear hearing aids, they are not getting any older (Biernat & Dovidio, 2000).

Goffman (1963, p. 20) suggests that persons attempt to manage their "spoilt identities" by "passing" or "covering". For persons with hearing impairment, passing is the attempt to pass as being normally hearing in conversation. Covering is an attempt to manage the situation so that the hearing impairment is as unobtrusive as possible in order to reduce any tension during a social interaction. Persons with hearing loss who are not using hearing aids or are using instruments that are not easily visible may be able to conceal the hearing loss in an attempt to escape the potential negative social consequences of the stigma (Coleman, 1997). Unfortunately as the old saying goes, *your hearing loss is more visible than your hearing aid*. If the hearing aids are visible, they will be a signal to others of the hearing loss. If the hearing aids are not visible, or if hearing aids are not being worn, and the person has difficulty with understanding a talker, the talker will have no idea what has created the problem. The talker may conclude that the listener is being rude or is ignoring them. This may also lead communication partners to question not only hearing, but also the cognitive status of the listener, especially if he or she is an elder.

When the hearing aids are visible, there may be an affective reaction from others and this may affect how the person with the hearing aid is understood and how the other person behaves (Dovidio et al., 2000). For example, when hearing aids can be seen in a person's ear there may be an immediate response of anxiety, worrying that there may be difficulty communicating with that person because there is recognition that the hearing loss may have an effect on speech understanding. One result of this type of reaction is that the persons without the hearing loss may avoid speaking with the person with hearing impairment. Education and experience can alter all of these responses.

The "hearing aid effect", which is a negative perception towards hearing aid users, has been described by numerous authors in the United States (e.g., Blood, Blood, & Danhauer, 1977; Doggett, Stein, & Gans, 1998; Iler, Danhauer, & Mulac, 1982; Johnson, Danhauer, & Edwards, 1982; Kochkin, 1993). Johnson et al. (1982) and Doggett et al. (1998) found that elders who use hearing aids are viewed in a negative light. Johnson et al. (1982) found that when university students were asked to rate their agreement with various statements

regarding perceptions of elder hearing aid wearers, they agreed that elder hearing aid wearers were perceived as being older, being less effective in speaking situations, having greater hearing loss, and receiving greater overall negative biases than those who do not wear hearing aids. Larger-sized hearing aids generated more negative biases. Doggett et al. (1998) found that elder females, after an interaction with an aided peer, perceived their aided peers significantly more negatively than their unaided peers on measures of confidence, intelligence, and friendliness, whether or not they had been advised by the researcher of the presence of the hearing aid. Elders in a Swedish study by Biering-Sørensen et al. (1997) responded affirmatively when asked on a questionnaire whether or not hearing aids make a person look "old" and if hearing aids should be invisible. Gleitman et al. (1993, p. 16) suggested that, "because hearing impairment is so strongly associated with being old, wearing hearing aids becomes the scarlet letter of aging," and that, "hearing may be a gold standard of determining whether one considers oneself to be young or old" (Gleitman et al., 1993, p. 18). In contrast, there is evidence to suggest that hearing aids may not be viewed in a negative light. For example, Iler et al. (1982) found that elder observers, whether they had experience with hearing aids or not, did not rate elder persons wearing hearing aids any lower than non-wearers on achievement, personality, or appearance. These researchers suggested that the "hearing aid effect" did not exist for the group of elders involved in the study. Because it is more common for older persons to have hearing loss and use hearing aids, people may be more accepting of the use of hearing aids in elders versus younger persons. Further research into current views of hearing aid wearers is warranted.

Large-scale surveys of consumers have been carried out for various aspects of the hearing industry (e.g. Griffing, 1992; Kochkin, 1993; 2000). Griffing (1992) found that the number one reason for not purchasing a hearing instrument was the stigma attached. Respondents reported that wearing hearing aids made them look old and made people feel sorry for them and view them as weak and handicapped. Kochkin's MarkeTrak surveys indicate that in 1993, 60% of those in the age bracket between 35 and 44 years and 30% between 75 and 84 listed stigma as one of their top five reasons for rejecting hearing aids. Approximately 40% of all nonusers reported stigma as a major reason for their rejection of hearing aids. These persons perceived wearing hearing aids as associated with increased age, weakness, and hearing difficulty. In contrast, in the 2000 survey, Kochkin found that the stigma of wearing hearing aids was reported by only 2.9% of respondents, and was 15th in the list of reasons for rejecting hearing aids. Brooks and Hallam (1998) found that an attitude that wearing a hearing aid was stigmatizing was not predictive of outcome for first time hearing aid candidates. Garstecki (1996) found that appearance while wearing

hearing aids was not a deterrent to acceptance and use of hearing aids by successful users. This change in reported views of hearing aids and hearing is an interesting one. Hopefully this change in view is a signal of a trend towards a decline in stigma related to hearing instrument use.

Reasons for not using hearing instruments include the cost outweighing the perceived benefit, amplified noise, lack of physical comfort, performance problems (e.g., whistling and buzzing), and difficulty with adjusting or handling the instrument (Brooks & Hallam, 1998; Fino et al., 1992; Garahan et al., 1992; Griffing, 1992; Kochkin, 2000). An improvement in the communication environment by improving acoustics and decreasing noise will benefit all communicators, not just those with hearing losses (Erber, Lamb, & Lind, 1996). All of these issues can be addressed by having knowledgeable hearing health care professionals act in partnership with persons with hearing loss and significant others, to prescribe, fit, and provide education in the use of an appropriate instrument to meet their specific communication needs (Erber et al., 1996). Elders have identified the importance of education in hearing aid use with hearing loss in their decision to use amplification (Garstecki & Erler, 1993).

A number of studies have looked at the implications of hearing aid use for the elders with hearing loss and their significant others. Hearing impairment and disability can reduce the quality of life and produce negative emotions or feelings (Gleitman et al., 1993; Kochkin & Rogin, 2000; National Council on the Aging, 1999). Use of hearing aids and other assistive listening devices significantly improves self-perceived handicap, speech understanding, quality of life, and interpersonal relationships (Jerger, Chmiel, Florin, Pirozzolo, & Wilson, 1996; Kochkin & Rogin, 2000; National Council on the Aging, 1999). Frequency of hearing aid use has been reported to be strongly related to perceived benefit in everyday functions (Smeeth et al., 2002), especially in full-time users (Nabelek, Tucker & Letowski, 1991), and is also related to higher ratings of life satisfaction (Bridges & Bentler, 1998) and self-concept (Harless & McConnell, 1982). Undoubtedly, if the benefits of hearing instrument use outweigh the costs, the elder with hearing loss will be more likely to obtain and use amplification on a routine basis.

The best candidates for success with amplification include those with confidence (Gatehouse, 1991), high levels of self-esteem (Gleitman et al., 1993), good speech understanding (Gatehouse, 1991; Stach et al., 1991), and greater perceived functional disability (Brooks & Hallam, 1998). Stephens, Meredith, Callaghan, Hogan, and Rayment (1991) found that for pre-retirement adults aged 50 to 65, those who complain of hearing disability are more disturbed about their hearing loss, experience greater handicap and are more likely to accept the hearing aid intervention. Interestingly, these individuals do not necessarily have greater hearing impairment.

Outside of the realm of hearing aids, Zimmer and Chappell (1999) reviewed the health utilization literature in order to develop and test a model for understanding receptivity to specific technological products by older adults. They concluded that receptivity is directly influenced by predispositional need and social support factors, as well as by one's level of concern for problems that could be alleviated through the use of technology. Results suggest that women were more receptive to technology than men and that many elders would welcome new technology geared toward enhancing the quality of life in their homes. These insights suggest that elders could be encouraged to obtain and use hearing aids and assistive devices if they were marketed by manufacturers and hearing health care professionals as devices that will enhance quality of life in the home and allow users to continue the activities they enjoy in everyday life. The current trend towards mainstream retailers marketing listening devices for use with televisions is an example of moving devices from a medical focus to a quality of life focus. This trend may be why we see less stigma reported to be associated with hearing aid use (Kochkin, 2000).

In summary, the numbers of elders who are using hearing assistive technologies is low compared to the number who would benefit from their use. Barriers to hearing aid and other assistive device use in the elder population are multifaceted. These barriers may be related to health care professional non-referral, physical changes that make it more difficult for elders to handle devices, the stigma of device use, and the costs versus the benefits of using devices. The implications of not using assistive devices when they are warranted range from negative effects on interpersonal relationships to lack of safety and accessibility in private and public places. Trends suggest that stigma related to hearing aids may no longer be a primary reason for non-use. Referral for device evaluation, performance of the devices, ease of use, education in using technology, and improving communication environments are important issues for the use and non-use of hearing aids and other assistive devices in elders.

Implications of an Alternative View of Elder Hearing Loss: Refocusing Attitudes and Services to Better Meet the Needs of Elder Canadians

The stigma of hearing loss has created barriers for elders in the identification and acknowledgement of hearing loss and use of assistive devices. Current reports (for example, Kochkin, 2000) suggest that stigma may no longer be as great a barrier to obtaining and using hearing aids as it has been in the past. The marketing of assistive technology as enhancing the quality of life of elders is an important move towards de-stigmatizing hearing loss in elders. Audiologic rehabilitation and participation in self-help groups organized by persons

with hearing loss are two important ways to change the view of elder hearing loss. These programs can increase the awareness of the impact of hearing loss, provide strategies to alleviate communication difficulties, and support the use of quality-of-life-enhancing assistive technology.

One aspect of audiology rehabilitation programs for older adults is the provision of information regarding the impact of hearing loss on communication and support for managing the problems encountered in day-to-day communication. Pertinent rehabilitation programs must educate the person with hearing loss and his or her communication partners about the impact on communication from the talker, listener, message, and environment (Bally, 1996; Erber, 1988; Gagné & Jennings, 2000; Jennings & Head, 1994; Noble, 1983; Noble & Hétu, 1994; Tye-Murray, 1998). Persons with hearing loss and their communication partners must also be active participants in anticipating, reducing and controlling communication difficulties. Rehabilitation programs must focus specifically on ways to enhance communication and a positive quality of life.

Miller and Major (2000) suggest that concealability of the stigma, perceived control, and group identity are all moderators in the use of coping strategies. Emotion-focused and problem-focused strategies (Lazarus & Folkman, 1984) are used to deal with stigma-related threat. The goal of emotion-focused strategies is to regulate stressful emotions related to communication difficulties. An example of an emotion-focused strategy is to leave a meeting when feeling emotional stress when having communication difficulties. The goal of problem-focused strategies is to change the nature of the relationship between the person and the environment and to eliminate sources of stress (Miller & Major, 2000). An example of a problem-focused strategy is to use an assistive listening device when attending a meeting to reduce difficulties and stress that may occur when trying to hear. Persons with concealable stigmas (such as hearing loss), low levels of perceived control, and lack of like-group affiliation are more likely to use emotion-focused strategies. A goal of hearing health care professionals should be to facilitate the use of proactive (planning ahead to deal with communication difficulties) and reactive (actively dealing with communication difficulties when they occur) problem-focused strategies and in stress management techniques to lessen the impact of emotion-focused reactions.

The use of such strategies can be supported by other persons with hearing loss and their significant others in group audiologic rehabilitation programs. Exercises such as "The 15 Things Method" (Trychin & Albright, 1993) can be used to assist group members to anticipate problems in communication and to plan strategies for preventing or minimizing them. The exercise requires participants to identify a situation that they expect will occur in the near future, to list 15 things they can do to

prevent or reduce the problems that might occur, to go back through the list and discuss the merits of each suggestion, to select the suggestions that seem most likely to work, and to practice these in the real situation. Once group participants have tried the suggestions, they report to the group on their strategy effectiveness. This exercise provides an opportunity for the participants not only to learn to use effective strategies, but also to receive peer support from other group members.

Programs designed to train the use of problem-focused strategies have been found to be effective for older adults, including those living in continuing care facilities and their communication partners (Andersson, Melin, Scott, & Lindberg, 1994; Kricos & Holmes, 1996; Robertson, Pichora-Fuller, Jennings, Kirson, & Roodenburg, 1997; Tye-Murray, 1991; Ward & Gowers, 1981a, 1981b). Participants in such programs can learn to assume greater control in dealing with everyday communication difficulties (Robertson et al., 1997). A key component of any training program is assertiveness training (Gagné & Jennings, 2000; Trychin & Albright, 1993). Elders with hearing impairment need to be able to request modifications in the physical environment, inform communication partners of difficulties experienced and the reason for those difficulties, and provide communication partners with appropriate, positive and constructive feedback (Gagné & Jennings, 2000). An increase in the availability of such programs should be a major focus of hearing health care practitioners.

The processes and expressions of stereotypes are dependent on situational and social contexts (Dovidio et al., 2000). Persons with hearing impairments may not be stigmatized in one situation or social context, but they may be in others. Some persons will avoid the person with hearing impairment because they feel uncomfortable, either because of the disruption to communication or because of facing what may happen to them in the future. Others will feel more comfortable, will want to continue the relationship with the hearing impaired person, and will be an active support to that person. At a meeting specifically for persons with hearing impairment, persons with hearing loss are in the majority. When normal-hearing partners are included in such meetings, then couples with one hearing-impaired partner are in the majority and not in the minority. In such a situation, the hearing impairment may become normalized and not stigmatized, and having a partner with a hearing impairment (or two partners with hearing impairment, for that matter) becomes normalized and not stigmatized. Participation in group audiology rehabilitation and support groups should assist in the de-stigmatization of the hearing loss, since it would be considered "normal" to have a hearing loss in such a group.

Laszlo (1994) suggested that persons with normal hearing are generally unaware of the issues and problems faced by persons with hearing impairments. He also

suggested that persons with hearing impairments are often unaware of the potential issues and problems linked to their hearing losses. Although individuals who have a hearing impairment are a heterogeneous group, an awareness of the common obstacles faced by most persons can motivate organized efforts to define these obstacles and to find appropriate solutions. The concealability of acquired hearing loss in elders and lack of a common identity strongly influences the effort to change societal perceptions of the nature and consequences of hearing loss (Laszlo, 1994; Miller & Major, 2000). By concealing the hearing loss, the elder hopes to avoid associating with others with hearing loss. In this way, elders avoid being associated with this stigma and the possibility of being identified as also having a hearing loss (Smart & Wegner, 2000). In doing this, they are denied the benefit of social support, services, and relationships that would be available to them within a group of like persons.

Coleman (1997, p. 227) suggests that "stigma is a statement about personal and social responsibility." People tend to be influenced by a belief that by isolating individuals with stigma they are isolating the problem and if they ignore the stigma, the responsibility for the stigma can be shifted. If stigmatized persons are made to feel responsible for their own stigma, non-stigmatized people can relinquish any responsibility for creating or perpetuating the conditions that surround it. Those who are stigmatized can choose whether or not to accept the stigmatization and the social consequences or to fight for integration and non-stigmatization. Participation in group audiology rehabilitation programs and support groups can assist persons with hearing impairments to make their own choices. Hétu (1996) described the important role of group rehabilitation programs and self-help groups in the normalization process. Participation in such groups is believed to "further reinstate the sense of belonging that was originally threatened by the stigma" (Hétu, 1996, p. 20) and to restore the individual's social identity. Hétu (1996) described how rehabilitation programs can reverse the stigmatization process through a "normalization process" (p. 19) that restores the social identity of those with hearing impairment. Rehabilitation needs to have a psychosocial focus (Danermark, 1998; Hétu, 1996; Noble, 1996; Stephens, 1996; Thomas, 1988), not simply a compensatory focus. Group participation can de-stigmatize the hearing impairment. When hearing impairment impacts upon all members of the group, hearing impairment becomes the norm. When hearing impairment is the norm, then social identity is restored and persons can begin to resolve communication difficulties. Participation in group audiology rehabilitation and support groups can be very powerful in the normalization process.

The concept of *successful aging* has been described as the capacity to adapt and continue to function in the face of change (Schieman, 2001). Factors associated with successful aging include autonomy, persistence,

effectiveness, and control (Schieman, 2001). Years of formal education has been identified as an important component in the promotion of successful aging (Schieman, 2001). Education has been found to both mediate and moderate the sense of control over life circumstances so that individuals who have lifelong gains in education have a higher sense of control, even in the face of health status changes such as hearing loss (Schieman, 2001). Education and this sense of control can assist persons to build their personal resources, such as problem-solving skills, sense of effectiveness, and persistence. Audiologists can provide further education regarding strategies for managing the impact of the hearing loss. Education, through group audiology rehabilitation, will support the development of problem-solving skills, sense of communication effectiveness, and persistence in dealing with the impacts of hearing loss.

As people grow older and physical capacities change, they require reappraisal of self-efficacy for activities that have been significantly affected by these changes. Self-efficacy is defined as "beliefs in one's capabilities to organize and execute the courses of action required to manage prospective situations. Efficacy beliefs influence how people think, feel, motivate themselves, and act" (Bandura, 1995, p. 2). Acquired hearing impairment, which is a change in physical capacity, will require a reappraisal of self-efficacy for all activities that require communication. There is a need for increased knowledge, skills, and expertise to compensate for changes in physical capacities. Individuals must learn how to monitor behaviours they wish to change, how to set attainable goals, and how to enlist incentives and social supports to sustain the effort that is needed to succeed (Bandura, 1986). If this does not occur, the result will be a loss of interest and skill and a decreased range of activities (Bandura, 1986).

If audiologists only deal with the peripheral sensory hearing loss that is affecting auditory behaviour, then the measure of hearing sensitivity and the prescription and fitting of hearing aids are the limits of practice and service. Obviously, from the low numbers of persons who have had hearing tests and are using hearing aids, we may conclude that this type of practice has not proven to be advantageous to the majority of elders with hearing loss. If audiologists go beyond this to provide services to deal with the problems that the hearing loss creates for the person, then the job becomes more challenging and yet more focused on our client's specific needs.

Participation in audiology rehabilitation can increase the chances that the elder with hearing impairment will use hearing aids. Kochkin (1999) studied 31 individual dispensing sites and demonstrated that consumer education programs reduced return rates of hearing aids by 46%. Meadows Beyer, and Northern (1999, 2000) found that return rates of hearing aids were lower for those who attended audiology rehabilitation classes (3%) compared to those who did not (12%). Iler, Danhauer, and Mulac (1982) endorsed the need for

public education regarding hearing impairment and hearing aid use and the inclusion of family members and friends in audiology rehabilitation programs as they can provide encouragement and support for successful hearing aid acceptance. Borg, Danemark, and Borg's (2002) program promotes a shared responsibility between the hearing impaired person and their communication partners, and the empowerment of the hearing impaired person to be an agent of change by educating communication partners about optimal communication that benefits both partners.

The elders of today are more technology friendly than the elders of yesterday. Andrich and Besio (2002) suggested that awareness and knowledge of assistive technology are key factors in supporting empowerment of people with disabilities. The educational process needs to be looked at within an empowerment perspective rather than simply the transmission of information. A person-centred, problem-solving approach where the person with disability is an active participant in the rehabilitation program is an important predictor of success (Gagné & Jennings, 2000). Program effectiveness should be evaluated in relation to the increased ability of end users to apply knowledge they have gained for improving their quality of life, and becoming informed, demanding and responsible consumers of assistive technology. According to Andrich and Besio (2002), the main indicator of success is the person's ability to make use of the knowledge received after completion of the course. In order for individuals to use this knowledge in their day-to-day lives, they must have support in the community. To provide this support, persons in the community must understand the impact of hearing loss and the importance of the availability and use of assistive devices in the home and in public places.

In summary, an alternative view of elders with hearing loss can be fostered through the provision of person-centred approaches to rehabilitation that include education programs that provide the participant with information and skills that will be used in their everyday lives to improve quality of communication and quality of life. Support for education and accessibility at the community level is essential.

Conclusions and Recommendations

This paper has explored how ageism, stigma, and normalization of hearing loss impact on the identification and acknowledgement of hearing loss and the uptake of assistive technology. An alternative view of elders with hearing loss has been suggested that describes the types of audiology services that are most beneficial to provide for this population.

In Cleaver's (1987) opinion, health services appear to suffer from a fundamental lack of motivation to develop audiology facilities that will be of particular benefit to the elderly, and the vital role of audiology assessment and rehabilitation in a comprehensive service

for the elderly does not seem to have been realized. Most often, health care services still equate audiologic rehabilitation with hearing aid prescription to the exclusion of the further services that are necessary for elders to become successful users of this technology and managers of day-to-day communication. Evidence does exist that there is benefit from attending audiologic rehabilitation programs, including an increase in the ability to cope with the hearing loss and a reduction in perceived hearing handicap (e.g., Andersson, et al., 1994; Smaldino & Smaldino, 1988).

Elders with hearing loss, health care providers, family physicians, government ministries and third-party health care insurance providers are unaware of the process for obtaining services, who provides these services, what services are available and the benefits of these services. An increase in the awareness among all of these groups is the only way to facilitate appropriate referral and follow-up. It is the responsibility of the audiology community to educate the public regarding the pervasiveness of adult-onset hearing loss and its psychosocial impact and to encourage early identification and appropriate rehabilitation services. It is the responsibility of the audiology community to educate the public and family physicians regarding the process for obtaining services, what these services are, and the costs versus the benefits of assistive technology and rehabilitation services. It is also the responsibility of the audiology community to provide rehabilitation services beyond the prescription and fitting of the hearing aid. The services provided by audiology community need to evolve to become all-encompassing, with a person-centred, problem-solving approach to audiologic rehabilitation rather than audiologic assessment and hearing aid prescription and fitting as the focal point.

Raising levels of ownership of hearing aids in elders, use of other assistive devices, and increasing the amount of time that they are used is certainly a major challenge (Humes, Wilson, Barlow, & Garner, 2002). At the same time, there is a failure to provide necessary services to the many elders with hearing loss for whom personal hearing aids are inappropriate. Elders require information prior to rehabilitation, appropriate selection of a hearing aid style and/or modifications of a hearing aid to ensure ease of device use, investigation of the benefits of other assistive technologies, initial instruction, and support in the adaptation to the use of assistive technology and techniques for managing the impact of the hearing loss on the individual and their significant others.

Rehabilitation programs must provide time for instruction and ongoing adaptation to device and strategy use. Programs must emphasize the benefits and provide realistic discussion of the limitations of technology. Peer support and the sharing of expertise between elder hearing aid users are invaluable in the adjustment process. Programs must support the

management of day-to-day communication through proactive and reactive problem-focused strategies that assist the elder with hearing loss and their communication partners to anticipate, control and reduce communication difficulties (Gagné, 1998; Gagné & Jennings, 2000). Programs that build self-efficacy encourage elders with hearing loss to be more assertive and to manage their communication successfully. Training in stress management techniques can lessen the impact of emotion-focused reactions to communication difficulties.

The costs of limiting access to services, stigmatizing those with hearing impairment and concealing hearing impairment result in limited participation in society. An increase in the number of group and individual audiologic rehabilitation services available and encouragement of participation in self-help groups can facilitate the successful management of communication and identity and assist in the de-stigmatization of elder hearing loss.

References

- Andersson, G., Melin, L., Scott, B., & Lindberg, P. (1994). Behavioural counseling for subjects with acquired hearing loss: A new approach to hearing tactics. *Scandinavian Audiology*, 23, 249-256.
- Andrich, R., & Besio, S. (2002). Being informed, demanding and responsible consumers of assistive technology: An educational issue. *Disability and Rehabilitation*, 24 (1,2,3), 152-159.
- Bally, S.J. (1996). Communication strategies for adults with hearing loss. In M.J. Moseley, & S.J. Bally (Eds.), *Communication therapy: An Integrated approach to aural rehabilitation* (pp. 41-91). Washington, DC: Gallaudet University Press.
- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice-Hall.
- Bandura, A. (1995). Exercise of personal and collective efficacy in changing societies. In A. Bandura (Ed.), *Self-efficacy in changing societies* (pp. 1-45). Cambridge: Cambridge University Press.
- Bandura, A. (1997). Developmental analysis of self-efficacy. In A. Bandura (Ed.), *Self efficacy: The exercise of control* (pp. 162-211). New York: W.H. Freeman & Company.
- Biering-Sørensen, M., Christensen, B., Sørensen, M.S., & Parving, A. (1997). The Valby Project: A survey of hearing in the elderly ≥ 80 years of age not provided with hearing aids. *Scandinavian Audiology*, 26, 33-41.
- Blood, G.W., & Blood, I.M., & Danhauer, J.L. (1977). The "hearing aid effect." *Hearing Instruments*, 28, 12.
- Borg, E., Danermark, B., & Borg, B. (2002). Behavioral awareness, interaction and counseling education in audiological rehabilitation: Development of methods and application in a pilot study. *International Journal of Audiology*, 41, 308-320.
- Bridges, J.A. & Bentler, R.A. (1998). Relating hearing aid use to well-being among older adults. *The Hearing Journal*, 51(7), 39, 42-44.
- Brooks, D.N. (1989). The effect of attitude on benefit obtained from hearing aids. *British Journal of Audiology*, 19, 3-11.
- Brooks, D.N., & Hallam, R.S. (1998). Attitudes to hearing difficulty and hearing aids and the outcome of audiological rehabilitation. *British Journal of Audiology*, 32, 217-226.
- Cacciatore, F., Napoli, C., Abete, P., Marcialo, E., Triassi, M., & Rengo, F. (1999). Quality of life determinants and hearing function in an elderly population: Osservatorio Geriatrico Campania study group. *Gerontology*, 45, 323-328.
- Canadian Council on Social Development for the Division of Aging and Seniors (1998). *Canadian seniors ... At a glance: The Canadian population is aging*. Ottawa: Division of Aging and Seniors, Health Canada.
- Cleaver, V.C.G. (1987). Services for elderly hearing-impaired people - are we the 'sound barrier'? *British Journal of Audiology*, 21, 249-252.
- Coleman, L.M. (1997). Stigma: An enigma demystified. In L.J. Davis (Ed.), *The Disability Studies Reader* (pp. 216-231). New York: Routledge.
- Crocker, J. (1999). Social stigma and self-esteem: Situational construction of self-worth. *Journal of Experimental Social Psychology*, 35, 89-107.
- Crocker, J., Major, B., & Steele, C. (1998). Social stigma. In D.T. Gilbert, S.T. Fiske, & G. Lindzey (Eds.), *Handbook of social psychology* Vol. 2 (4th ed., pp. 504-553). Boston: McGraw-Hill.
- Danermark, B.D. (1998). Hearing impairment, emotions and audiological rehabilitation: A sociological perspective. *Scandinavian Audiology*, 27(Suppl 49), 125-131.
- Doggett, S., Stein, R.L., & Gans, D. (1998). Hearing aid effect in older females. *Journal of the American Academy of Audiology*, 9(5), 361-366.

- Dovidio, J.F., Major, B., & Crocker, J. (2000). Stigma: Introduction and overview In T.F. Heatherton, R.E. Kleck, M.R. Hebl, & J.G. Hull (Eds.), *The social psychology of stigma* (pp. 1-32). New York: The Guilford Press.
- Duijvestijn, J.A., Antenius, L.I.C., Hendriks, J.J.T., & Manni, J.J. (1999). Definition of hearing impairment and its effect on prevalence figures: A survey among senior citizens. *Acta Otolaryngologica (Stockh.)*, 119, 420-423.
- Dubno, J.R., Dirks, D.D., & Morgan, D.E. (1984). Effects of age and mild hearing loss on speech recognition in noise. *Journal of the Acoustical Society of America*, 76, 87-96.
- Erber, N.P. (1988). *Communication therapy for hearing-impaired adults*. Abbotsford, Victoria, Australia: Clavis Publishing.
- Erber, N.P., & Heine, C. (1996). Screening receptive communication of older adults in residential care. *American Journal of Audiology*, 5(3), 38-46.
- Erber, N.P., Lamb, N.L., & Lind, C. (1996). Factors that affect the use of hearing aids by older people: A new perspective. *American Journal of Audiology*, 5(2), 11-18.
- Eriksson-Mangold, M., & Carlsson, S.G. (1991). Psychological and somatic distress in relation to perceived hearing disability, hearing handicap, and hearing measurements. *Journal of Psychosomatic Research*, 35(6), 729-740.
- Eriksson-Mangold, M., & Erlåndsson, S.I. (1984). The psychological importance of nonverbal sounds. *Scandinavian Audiology*, 13, 243-249.
- Fino, M.S., Bess, F.H., Lichtenstein, M.J., & Logan, S.A. (1992). Factors differentiating elderly hearing aid wearers vs. non-wearers. *Hearing Instruments*, 43(2), 6-8-10.
- Fiske, S.T., & Neuberg, S.L. (1990). A continuum model of impression formation: From category based to individuating processes as a function of information, motivation, and attention. In M.P. Zanna (Ed.), *Advances in experimental social psychology* Vol. 23 (pp. 1-74). San Diego, CA: Academic Press.
- Gagné, J.-P. (1998). Reflections on evaluative research in audiological rehabilitation. *Scandinavian Audiology*, 27(Suppl 49), 69-79.
- Gagné, J.-P., & Jennings, M.B. (2000). Audiologic rehabilitation intervention services for adults with an acquired hearing impairment (pp. 547-579). In M. Valente, H. Hosford-Dunn, & R.J. Roeser (Eds.), *Audiology: Treatment*. New York: Thieme.
- Garahan, M.B., Waller, J.A., Houghton, M., Tisdale, W.A., & Runge, C.F. (1992). Hearing loss prevalence and management in nursing home residents. *Journal of the American Geriatrics Society*, 40, 130-134.
- Garstecki, D.C. (1990). Hearing health knowledge in aging adults. *Journal of the Academy of Rehabilitative Audiology*, 23, 79-88.
- Garstecki, D.C. (1996). Older adults: Hearing handicap and hearing aid management. *American Journal of Audiology*, 5(3), 25-33.
- Garstecki, D.C., & Erler, S.F. (1993, November). *Factors influencing hearing aid use by aging adults*. Paper presented at the meeting of the American Speech-Language-Hearing Association, Anaheim, CA.
- Garstecki, D.C., & Erler, S.F. (1995). Older women and hearing. *American Journal of Audiology*, 4(2), 41-46.
- Gatehouse, S. (1991). Factors that influence the benefit from amplification in the elderly. *Acta Otolaryngologica, Supplement* 476, 262-269.
- Gilhome Herbst, K.R., Meredith, R., & Stephens, S.D.G. (1991). Implications of hearing impairment for elderly people in London and in Wales. *Acta Otolaryngologica, Supplement* 476, 209-214.
- Gleitman, R., Goldstein, D.P., & Binnie, C.A. (1993). Stigma of hearing loss affects hearing aid purchase decisions. *Hearing Instruments*, 44(6), 16-18, 20.
- Goffman, E. (1963). *Stigma: Notes on the management of spoiled identity*. Englewood Cliffs, NJ: Prentice-Hall, Inc.
- Griffing, T.S. (1992). A new approach to hearing instrument candidacy. *Hearing Instruments*, 43(3), 23-24.
- Halberg, L.R.-M., & Barrenäs, M.-L. (1993). Living with a male with noise induced hearing loss: Experiences from the perspective of the spouses. *British Journal of Audiology*, 27, 255-261.
- Halberg, L.R.-M., & Carlsson, S.G. (1991). A qualitative study of strategies for managing a hearing impairment. *British Journal of Audiology*, 25, 201-211.
- Hansen, V. (1998). Dealing with the psychological aspects of patient reluctance. *The Hearing Review*, 5(9), 8, 10, 12, 14.
- Harless, E.L., & McConnell, F. (1982). Effects of hearing aid use on self concept in older persons. *Journal of Speech and Hearing Disorders*, 47(3), 305-309.
- Health & Welfare Canada. (1988). *Acquired hearing impairment in the adult. Report of a task force convened by the Health Services Directorate, Health Services and Promotion Branch*. Ottawa: Health and Welfare Canada.
- Hétu, R. (1996). The stigma attached to hearing impairment. *Scandinavian Audiology*, 25 (Suppl.43), 12-24.
- Hétu, R., Jones, L., & Getty, L. (1993). The impact of acquired hearing impairment on intimate relationships: Implications for rehabilitation. *Audiology*, 32, 363-381.
- Hétu, R., Lalonde, M., & Getty, L. (1987). Psychosocial disadvantages associated with occupational hearing loss as experienced in the family. *Audiology*, 26, 141-152.
- Hétu, R., Riverin, L., Getty, L., Lalande, N.M., & St-Cyr, C. (1988). Qualitative analysis of the handicap associated with occupational hearing loss. *British Journal of Audiology*, 22, 251-264.
- Hnath Chisolm, T., Willott, J.F., & Lister, J.J. (2003). The aging auditory system: Anatomic & physiologic changes & implications for rehabilitation. *International Journal of Audiology*, 42(Suppl.2), S3-S10.
- Humes, L.E., Wilson, D.L., Barlow, N.N., & Garner, C.B. (2002). Changes in hearing-aid benefit following 1 or 2 years of hearing-aid use by older adults. *Journal of Speech, Language, and Hearing Research*, 45, 772-782.
- Humphrey, C., Gilhome Herbst, K., & Faurqi, S. (1981). Some characteristics of the hearing impaired elderly who do not present themselves for rehabilitation. *British Journal of Audiology*, 15, 25-30.
- Iller, K.L., Danhauer, J.L., & Mulac, A. (1982). Peer perceptions of geriatrics wearing hearing aids. *Journal of Speech and Hearing Disorders*, 47(4), 433-438.
- Janz, N., & Becker, M. (1984). The Health Belief Model: A decade later. *Health Education Quarterly*, 11, 1-47.
- Jennings, M.B., & Head, B.G. (1994). Development of an ecological audiologic rehabilitation program in a home-for-the-aged. *Journal of the Academy of Rehabilitative Audiology*, 27, 73-88.
- Jerger, J., Chmiel, R., Florin, E., Pirozzolo, F., & Wilson, N. (1996). Comparison of conventional amplification and an assistive listening device in elderly persons. *Ear and Hearing*, 17(6), 490-504.
- Johnson, C.E., Danhauer, J.L., & Edwards, R.G. (1982). The "hearing aid effect" on geriatrics - fact or fiction? *Hearing Instruments*, 33(10), 24, 26, 56.
- Jones, L., Kyle, J., & Wood, P. (1987). *Words apart: losing your hearing as an adult*. London: Tavistock Publications.
- Karlsson, A.-K., & Rosenhall, U. (1998). Aural rehabilitation in the elderly: Supply of hearing aids related to measured need and self-assessed hearing problems. *Scandinavian Audiology*, 27, 153-160.
- Kempen, G.I.J.M., Verbrugge, L.M., Merrill, S.S., & Ormel, J. (1998). The impact of multiple impairments on disability in community-dwelling older people. *Age and Ageing*, 27, 595-604.
- Kochkin, S. (1993). MarkeTrak III: Why 20 million in US don't use hearing aids for their hearing loss. *The Hearing Journal*, 46, 20-27.
- Kochkin, S. (1999). Reducing hearing instrument returns with consumer education. *The Hearing Review*, 6(10), 18, 20.
- Kochkin, S. (2000). MarkeTrak V: "Why my hearing aids are in the drawer": The consumers' perspective. *The Hearing Journal*, 53(2), 34-42.
- Kochkin, S., & Rogin, C.M. (2000). Quantifying the obvious: The impact of hearing instruments on quality of life. *The Hearing Review*, 7(1), 6, 8, 10, 12, 16, 18, 22, 24, 26, 30, 32, 33, 34.
- Kramer, S.E., Kapteyn, T.S., Kuik, D.J., & Deeg, D.J.H. (2002). The association of hearing impairment and chronic diseases with psychosocial health status in older age. *Journal of Aging and Health*, 14(1), 122-137.
- Kricos, P.B., & Holmes, A. (1996). Evaluating the success of adult audiologic rehabilitation support programs. *Seminars in Hearing*, 21(3), 267-270.
- Kyle, J.G., Jones, L.G., & Wood, P.L. (1985). Adjustment to acquired hearing loss: A working model (pp. 119-138). In H. Orlans (Ed.), *Adjustment to adult hearing loss*. San Diego: College-Hill Press, Inc.
- Laszlo, C. (1994). Is there a hard-of-hearing identity? *Journal of Speech Language Pathology and Audiology*, 18(4), 248-252.
- Lazarus, R.S., & Folkman, S. (1984). *Stress appraisals and coping*. New York: Springer Publishing Company.
- Mahoney, C.O., Stephens, S.D.G., & Cadge, B.A. (1996). Who prompts patients to consult about hearing loss? *British Journal of Audiology*, 30, 153-158.
- McSpaden, J.M. (1997). Hearing loss: Chronic or acute? *The Hearing Review*, 4(4), 60-62.
- Meadows Beyer, C., & Northern, J.L. (1999). Clinical report: Reducing hearing aid returns through patient education. *Audiology Today*, 11(2), 10-11.
- Meadows Beyer, C., & Northern, J.L. (2000). Audiologic rehabilitation support programs: A network model. *Seminars in Hearing*, 21(3), 257-266.
- Meadow-Orlans, K.P. (1985). Social and psychological effects of hearing loss in adulthood: A literature review (pp. 35-58). In H. Orlans (Ed.), *Adjustment to adult hearing loss*. San Diego: College-Hill Press, Inc.
- Miller, C.T., & Major, B. (2000). Coping with stigma and prejudice. In T.F. Heatherton, R.E. Kleck, M.R. Hebl, & J.G. Hull (Eds.), *The social psychology of stigma* (pp. 243-272). New York: The Guilford Press.
- Mulrow, C.D., Aguilar, C., Endicott, J.E., Tuley, M.R., Velez, R., Charlip, W.S., Rhodes, M.C., Hill, J.A., & DeNino, L.A. (1990a). Quality-of-life changes and hearing impairment: A randomized trial. *Annals of Internal Medicine*, 113, 188-194.
- Mulrow, C.D., Aguilar, C., Endicott, J.E., Velez, R., Tuley, M.R., Charlip, W.S., & Hill, J.A. (1990b). Association between hearing impairment and the quality of life of elderly individuals. *Journal of the American Geriatrics Society*, 38, 45-50.
- Nabelek, A.K., Tucker, F.M., Letowski, T.R. (1991). Toleration of background noises: Relationship with patterns of hearing aid use by elderly persons. *Journal of Speech and Hearing Research*, 34, 679-685.
- National Council on the Aging (1999). *The consequences of untreated hearing loss in older persons*. Washington, DC: National Council on the Aging.
- Noble, W. (1983). Hearing, hearing impairment, and the audible world: A theoretical essay. *Audiology*, 22, 325-338.
- Noble, W. (1996). What is a psychosocial approach to hearing loss? *Scandinavian Audiology*, 25(Suppl 43), 6-11.
- Noble, W., & Hétu, R. (1994). An ecological approach to disability and handicap in relation to impaired hearing. *Audiology*, 33, 117-126.
- Noh, S., Gagné, J.-P., & Kaspar, V. (1994). The application of health seeking behavior & compliance models to audiological rehabilitation. In J.-P. Gagné & N. Tye-Murray (Eds.), *Research in audiological rehabilitation: Current trends & future directions* [Monograph]. *Journal of the Academy of Rehabilitative Audiology* (Suppl.), 27, 375-389.
- Oyer, H.J., & Oyer, E.J. (1985). Adult hearing loss in the family (pp. 139-154). In H. Orlans (Ed.), *Adjustment to adult hearing loss*. San Diego: College-Hill Press.
- Prendergast, S.G., & Kelley, L.A. (2002). Aural rehab services: Survey reports who offers which ones & how often. *The Hearing Journal*, 55(9), 30, 34-35.
- Prochaska, J., Norcross, J., & DiClemente, C. (1984). *Changing for good*. New York: Morrow.
- Robertson, L.F., Pichora-Fuller, M.K., Jennings, M.B., Kirson, S.R., & Roodenburg, K. (1997). The effect of an audiological rehabilitation program on responses to scenarios depicting communication breakdown. *Journal of Speech-Language Pathology and Audiology*, 21(3), 187-197.

- Rutman, D. (1989). The impact and experience of adventitious deafness. *American Annals of the Deaf*, 134(5), 305-311.
- Salomon, G., Vesterager, V., & Jagd, M. (1988). Age-related hearing difficulties I. Hearing impairment, disability, and handicap - A controlled study. *Audiology*, 27, 164-178.
- Schieman, S. (2001). Age, education and the sense of control: A test of the cumulative advantage hypothesis. *Research on Aging*, 23(2), 153-178.
- Scherer, M.J., & Frisina, D.R. (1998). Characteristics associated with marginal hearing loss and subjective well-being among a sample of older adults. *Journal of Rehabilitation Research and Development*, 35(4), 420-426.
- Schow, R.L. (1982). Success of hearing aid fitting in nursing homes. *Ear and Hearing*, 3, 173-177.
- Schow, R.L., Balsara, N.R., Smedley, T.C., & Whitcomb, C.J. (1993). Aural rehabilitation by ASHA audiologists: 1980-1990. *American Journal of Audiology*, 2, 28-37.
- Smaldino, S.E., & Smaldino, J.J. (1988). The influence of aural rehabilitation & cognitive style disclosure on the perception of hearing handicap. *Journal of the Academy of Rehabilitative Audiology*, 21, 57-64.
- Smart, L., & Wegner, D.M. (2000). The hidden costs of hidden stigma. In T.F. Heatherton, R.E. Kleck, M.R. Hebl, & J.G. Hull (Eds.), *The social psychology of stigma* (pp. 220-242). New York: The Guilford Press.
- Smedley, T.C., & Schow, R.L. (1990). Frustrations with hearing aid use: Candid observations from the elderly. *The Hearing Journal*, 43, 21-27.
- Smeeth, L., Fletcher, A.E., Ng, E. S.-W., Stirling, S., Nunes, M., Breeze, E., Bulpitt, C.J., Jones, D., & Tulloch, A. (2002). Reduced hearing, ownership, and use of hearing aids in elderly people in the UK - the MRC trial of the assessment and management of older people in the community: a cross-sectional survey. *The Lancet*, 359, 1466-1470.
- Stach, B.A., Loiselle, L.H., & Jerger, J.F. (1991). Special hearing aid considerations in elderly patients with auditory processing disorders. *Ear and Hearing*, 12 (Suppl. 6), 131S - 138S.
- Statistics Canada. (2002). *Profile of the Canadian population by age & sex: Canada ages, 2001 census (2001 census: Analysis series)*. Catalogue Number 96F0030XIE2001002. Ottawa: Statistics Canada.
- Statistics Canada (1992). *Canadians with impaired hearing*. Catalogue Number 82-615.5. Ottawa: Statistics Canada.
- Stephens, D. (1996). Hearing rehabilitation in a psychosocial framework. *Scandinavian Audiology*, 25, Supplement 43, 57-66.
- Stephens, S.D.G., Meredith, R., Callaghan, D.E., Hogan, S., & Rayment, A. (1991). Early intervention and rehabilitation: Factors influencing outcome. *Acta Otolaryngol. Suppl.* 476, 221-225.
- Thomas, A.J. (1988). Rehabilitation of adults with acquired hearing loss: The psychological dimension. *British Journal of Audiology*, 22, 81-83.
- Thomas, A.J., & Gilhame Herbst, K.R. (1980). Social & psychological implications of acquired deafness for adults of employment age. *British Journal of Audiology*, 14, 76-85.
- Thibodeau, L.M., & Schmitt, L. (1988). A report on condition of hearing aids in nursing homes and retirement centers. *Journal of the Academy of Rehabilitation Audiology*, 21, 113-119.
- Trychin, S., & Albright, J. (1993). *Staying in touch: A workbook for solving communication problems related to hearing loss*. Washington, DC: Gallaudet University.
- Turner, J. C., Hogg, M.A., Oakes, P.J., Reicher, S.D., & Wetherell, M.S. (1987). *Rediscovering the social group: A self-categorization theory*. Oxford: Basil Blackwell.
- Tye-Murray, N. (1998). *Foundations of aural rehabilitation*. San Diego, CA: Singular.
- Tye-Murray, N. (1991). Repair strategy usage by hearing-impaired adults and changes following communication therapy. *Journal of Speech and Hearing Research*, 34, 921-928.
- Van den Brink, R.H.S., Wit, H.P., Kempen, G.I.J.M., & van Heuvelen, M.J.G. (1996). Attitude in help-seeking for hearing impairment. *British Journal of Audiology*, 30, 313-324.
- Ward, P.R., & Gowers, J.I. (1981a). Teaching hearing-aid skills to elderly people: Hearing tactics. *British Journal of Audiology*, 15, 257-259.
- Ward, P.R., & Gowers, J.I. (1981b). Hearing tactics: The long-term effects of instruction. *British Journal of Audiology*, 15, 261-262.
- Weinstein, B. (2000). *Geriatric audiology*. New York: Thieme.
- Wensing, M., van de Lisdonk, E., van Weel, C., van den Hoogen, F., Schattenberg, G., & Grol, R. (2001). Hearing disability in older adults: Patient and doctor delay in primary medical care. *Journal of the American Geriatrics Society*, 49(10), 1398-1399.
- Willott, J.F. (1991). *Aging and the auditory system*. San Diego, CA: Singular Publishing Group.
- Zebrowitz, L.A., & Montepare, J.M. (2000). "Too Young, Too Old": Stigmatizing adolescents and elders. In T.F. Heatherton, R.E. Kleck, M.R. Hebl, & J.G. Hull (Eds.), *The social psychology of stigma* (pp. 334-373). New York: The Guilford Press.
- Zimmer, Z., & Chappell, N.L. (1999). Receptivity to new technology among older adults. *Disability and Rehabilitation*, 21(5/6), 222-230.

Author Note

Mary Beth Jennings, National Centre for Audiology, Elborn College, Room EC 2262, The University of Western Ontario, London, ON N6G 1H1, Jennings@nca.uwo.ca.

Support for Mary Beth Jennings in writing this paper was provided by the Provincial Rehabilitation Research Program (Ontario Ministry of Health and Long Term Care and the Toronto Rehabilitation Institute Foundation) Doctoral Studentship Award and the Canadian Federation of University Women's Beverley Jackson Doctoral Fellowship. This paper is part of a larger work that was submitted to fulfill the comprehensive paper requirement in the Ph.D. Program in Rehabilitation Sciences, Faculty of Health Sciences at the University of Western Ontario. Appreciation is extended to Doctors Margaret F. Cheesman, Janice Miller Polgar, & Anthony Van der Voort for their comments.

Received: July 8, 2004

Accepted: January 6, 2005

