

Stigma Regarding Hearing Loss and Hearing Aids: A Scoping Review

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Stigma regarding hearing loss and hearing aids presents a great challenge, especially because dealing with its consequences in an appropriate and timely manner might be associated with better outcomes for the person with hearing loss, their caregivers, and society. A clear understanding of the stigma concept and its measurement in the area of hearing loss among older adults might advance knowledge in this area and provide better life quality to persons with this problem. The aims of our scoping review were (a) to systematically obtain and evaluate the relevant literature on stigma and hearing loss and (b) to summarize current research findings and draw conclusions for future research and clinical care in this area. A scoping review of the literature published from January 1982 up until December 2014 on stigma and hearing loss among older persons was conducted. Twenty-one relevant publications were identified. Conceptually, the studies concentrated on exploring the meaning and subjective experience associated with stigma, especially public and self stigma. Lacking a theoretical framework, the majority of the studies were based on a description of stigmatic attitudes associated with hearing loss and hearing aids, and they limited themselves to describe almost exclusively the stereotypes associated with hearing-loss and hearing aids. The size and visibility of hearing aids were the main features associated with the reluctance to use them and with the stigma associated with them. More theoretically based and empirically rigorous research is needed in this area.

Keywords: hearing aids, hearing impairment, stigma

Age related hearing loss (presbycusis) is the third most common chronic condition reported by elderly people and thus is a leading public health concern (Cruikshanks et al., 2003; Gordon-Salant, 2005; Oyler, 2012).

Hearing sensitivity declines gradually and progressively with aging, and is not explained by genetic history, disease, or trauma to the auditory system (Bance, 2007; Hickson & Scarinci, 2007). Nonetheless, there are other factors affecting hearing loss with age, such as noise

exposure and chronic diseases (e.g., diabetes, kidney and heart diseases; Oyler, 2012). Presbycusis is characterized by bilateral, symmetrical hearing loss that begins by affecting high-frequency thresholds (Ng & Loke, 2015; Wallhagen, Pettengill, & Whiteside, 2006). Therefore, the main difficulties arise when elderly persons must follow conversational speech in adverse listening conditions, such as noisy situations (e.g., social interactions), TV/radio listening, and reverberant environments (Gordon-Salant, 2005; Hickson & Scarinci, 2007). Saying that, there have been a number of studies suggesting that age is a factor in selective listening tasks separate from the consequences of hearing loss (Marrone, Mason & Kidd, 2008).

The prevalence of presbycusis increases with age. About one fifth (18%) of adults aged 45 to 64, nearly one third (30%) of adults aged 65 to 74, and about half (48%) of adults aged 75 and older suffer from hearing loss (National Institute on Deafness and other Communication Dis-

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orders [NIDCD], 2013). At advanced ages, those percentages rise significantly, with about 80% of persons aged 85 and older experiencing hearing loss (Bance, 2007).

Apart from its high prevalence, the implications of presbycusis are both broad and serious (Arlinger, 2003; Gordon-Salant, 2005). Indeed, research shows that untreated hearing loss is associated with reduced quality of life and diminished physical, cognitive, emotional and behavioral functioning (Arlinger, 2003; Chia et al., 2007; Lin, Thorpe, Gordon-Salant, & Ferrucci, 2011; Noble, 2009; Wallhagen, Strawbridge, Shema, & Kaplan, 2004).

Hearing aids provide an effective treatment option for older adults with hearing loss, which might reduce the impact of these negative consequences. Moreover, in recent years remarkable progress has been achieved in hearing aid technology, allowing selective amplification to match a user's audiometric profile and allowing increasingly sophisticated signal processing (Gordon-Salant, 2005; McCormack & Fortnum, 2013), and a better aesthetic solution. However, despite these significant improvements, the uptake and use of hearing aids among elderly persons who might benefit from amplification is low, with approximately 20% of persons aged 65 and up using them (Bance, 2007; Carson, 2005; Fischer et al., 2003; Gordon-Salant, 2005; NIDCD, 2013; Noble, 2009; Oyler, 2012; Smeeth et al., 2002; Yueh, Shapiro, MacLean, & Shekelle, 2003).

Many studies attempted to explain the reasons behind this low rate of use of hearing aids and examined the barriers that hinder their use. The most common reasons for nonuse reported in the literature include financial concerns, negative concepts associated with the technical aspects of hearing aid use, and lack of knowledge and misconceptions in relation to hearing loss and hearing aids (Fischer et al., 2011; Kochkin, 2007; Meister, Walger, Brehmer, von Wedel, & von Wedel, 2008; Vestergaard-Knudsen, Oberg, Nielsen, Naylor, & Kramer, 2010; Wallhagen, 2010). Additionally, there is broad anecdotal consensus that in conjunction with those barriers, stigma is a major factor inhibiting help seeking and treatment of hearing impairment (Atcherson, 2002; Erler & Garstecki, 2002; Johnson et al., 2005; Kochkin, 1993, 2000, 2007; Meister et al., 2008; Shield, 2006; Sim-

mons, 2005; Southall, Gagne, & Jennings, 2010; Wallhagen, 2010).

Surprisingly, however, empirical research on the topic is limited. The relatively few studies conducted to date on the topic of stigma as a barrier for the use (or nonuse) of hearing aids among the elderly are descriptive in nature and are not based on any significant theoretical model. Furthermore, they lack a conceptual definition of the stigma concept regarding hearing loss and its dimensions and characteristics. This is unexpected, especially because with regard to other major chronic health conditions that emerge in adulthood, the concept of stigma has been clearly defined and assessed (Brohan, Slade, Clement, & Thornicroft, 2010).

One of the ways to advance our understanding in a specific field is to scrutinize and summarize the existing knowledge in the literature. This was the aim of the present study. Our main research questions were what are the main theoretical and methodological characteristics of the current literature in the area of stigma and hearing loss and stigma and hearing aids in the elderly population, and how should future research proceed in expanding this important field of enquiry?

Method

A scoping review was conducted. According to Arksey and O'Malley (2005), reasons for undertaking a scoping review include (a) examining the range of an area of research and (b) determining gaps in the literature. The scoping review methodology advanced by these authors was used for the present study and included five stages: (a) identifying the research question, (b) identifying relevant studies, (c) selecting the studies, (d) charting the data, and (e) summarizing and reporting the results.

Search Strategy

A computer-based literature search was performed to identify publications on the topic of stigma regarding hearing impairment/hearing aids, from January 1982 until December 2014. CINAHL, PubMed, and PsycNET databases were chosen for the research as they contain publications that cater to a wide range of health professions related to hearing impairment care. The following keyword search terms were used: (hearing loss AND stigma) OR (hearing disor-

ders AND stigma) OR (hearing impairment AND stigma) OR (hearing aids AND stigma). The search was restricted to peer-reviewed journals only, in the English language, on human subjects and was supplemented by manual searching of reference lists.

Inclusion and Exclusion Criteria

Studies that identified the key terms in the title, abstract, article, or MeSH heading were retained for further examination. Studies published as abstracts, conference proceedings or pilot results published in non-peer-reviewed journals were excluded. In addition, books, book chapters, comments on publications, and dissertations were also excluded. No exclusion criteria were established regarding the type of research design.

Inclusion criteria were (a) older adults with progressive hearing loss being the population of interest and (b) the outcome measure was clearly focused on (or at least on some aspects of) stigma regarding hearing loss and/or hearing aids. Although given the descriptive aim of the review, no definitions of stigma and/or hearing aids were set a priori, and all articles including these terms were retrieved, the analysis of the data relied on the most common dimensions of the concept of stigma cited in the literature: the cognitive dimension (i.e., stereotypes), the emotional dimension (i.e., prejudice) and the behavioral dimension (i.e., discrimination) (Corrigan, 1998).

Data Extraction and Analysis

Search results for all databases were merged. Duplicates and nonrelated papers were excluded. Titles and abstracts of the remaining papers were assessed against the inclusion and exclusion criteria independently by both authors. The resulting papers were pooled and disagreements were resolved through discussion based on the full text article.

Following this stage, a standardized form was used to summarize the information in each article. The variables extracted were: reference/country, aim of the study, study design, year of publication, and main finding/results.

Results

The study selection flow is presented in Figure 1. As can be seen, a total of 21 relevant

publications were identified. They were read in full by both authors and the information was summarized in Table 1.

Background of Studies Reviewed

The number of studies has consistently increased over the years. Through 1988, four studies were published; between 1990 and 1998, six studies were published; and between 2001 and 2014, 11 studies were published.

Although not defined explicitly by the authors of the reviewed studies, based on our examination of the studies, nearly half ($n = 9$) of the studies examined self-stigma (i.e., the internalization of public stigma by the stigmatized person; Corrigan & Shapiro, 2010), around a quarter ($n = 6$) examined public stigma (i.e., the stigma that occurs when large segments of the general population agree with the negative stereotypes attributed to a group; Corrigan & Shapiro, 2010), three studies examined public stigma and self-stigma, two studies examined self-stigma and courtesy stigma (i.e., the social and psychological reactions to people associated with a stigmatized person (e.g., family, professionals; Bos, Pryor, Reeder, & Stutterheim, 2013), and one study examined public stigma and courtesy stigma.

Conceptual Issues

Theoretical framework. Nearly all the studies were descriptive and applied no conceptual framework. Only one study (Southall et al., 2010) used a conceptual framework for its research; a model based on stigma-induced identity threat. According to this model the appraised identity threat is based on three construals: (a) collective representations, for example, the shared societal understandings and beliefs about stigmatizing conditions; (b) personal characteristics; and (c) situational cues for example, matters related to the physical and social environment inherent in a potentially stigmatizing event, like “background noise.”

Dimensions of stigma. Lacking a theoretical framework, the majority of the studies included in our review were based on a description of the stigmatic attitudes associated with hearing loss and hearing aids (Cienkowski & Pimentel, 2001; Doggett, Stein, & Gans, 1998; Foss, 2014; Gleitman, Goldstein, & Binnie, 1993; Hindhede, 2012; Johnson, Danhauer, &



Figure 1. Study selection flow diagram.

Edwards, 1982; Kelly-Campbell & Plexico, 2012; Kochkin, 1990, 1993; Mulac, Danhauer, & Johnson, 1983; Southall, Jennings, & Gagne, 2011; Wallhagen, 2010), and they related almost exclusively to the cognitive aspect of stigma, that is, they described only the stereotypes associated with hearing loss and hearing aids. The most common stereotype associated with hearing aids was “old age” (e.g., hearing aids are for old people, make you look older; Cienkowski & Pimentel, 2001; Gleitman et al., 1993; Hindhede, 2012; Johnson et al., 1982; Kelly-Campbell & Plexico, 2012; Kochkin, 1990, 1993; Mulac et al., 1983; Wallhagen, 2010). Other stereotypes reported in the studies included “less communicatively effective when

wearing hearing aids” (Johnson et al., 1982; Mulac et al., 1983; Southall et al., 2011), “being deaf” (Hetu, 1996; Hindhede, 2012) “less sociable/friendly” (Doggett et al., 1998; Hindhede, 2012), “looking disabled,” “weak,” “feeble” (Kochkin, 1993), “comical,” “embarrassing,” “lonely,” and “less confident” (Doggett et al., 1998).

Close to, a third of the studies (28.57%) dealt with behavioral aspects of hearing impairment stigma and hearing aid stigma (Foss, 2014; Hetu, 1996; Hindhede, 2012; Kelly-Campbell & Plexico, 2012; Southall et al., 2010; Southall et al., 2011). All of them reported that concealing the hearing difficulties (e.g., pretending to hear what was being said, refraining from making explicit

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Table 1
Review of Papers on Stigma of Hearing Impairment

Reference/Country	Aim	Method/Type of review Year of publication	Participants	Results/Findings
Brooks & Hallam/UK	To assess attitudes to acquired hearing loss and hearing aids.	Quantitative 1998	113 first-time hearing aid persons; mean age 74 years	An attitude that wearing a hearing aid was stigmatizing was not predictive of outcome, except a report of more difficulty in handling the hearing aid.
Cienkowski & Pimentel/USA	To compare young and older adults' attitudes towards hearing loss and hearing aids.	Quantitative 2001	186 college students, mean age 20; 221 hearing aid users, mean age 73; 53 non-users, mean age 69	More than half of the students stated that they would be concerned to be seen wearing a hearing aid, and more than one-third would be embarrassed to wear one. Many students (60%) indicated that they would wear hearing aids if they were smaller. Older adult non-users were more likely than any other group to associate hearing aids with aging (37%).
Doggett et al./USA	To examine objective and subjective older women's perceptions regarding peers with and without hearing aids.	Quantitative/Experimental 1998	20 females; mean age 73 years	Peers with hearing aids were perceived significantly more negative than peers without aids on measures of confidence, intelligence and friendliness.
Ertler & Garstecki/USA	To examine the degree of stigma associated with hearing loss and hearing aid use among women in three age groups (35-45, 55-65, and 75-85 years).	Quantitative 2002	191 women with normal hearing	Negative perceptions regarding hearing loss and hearing use were affected by age. Younger women perceived greater stigma than older women. Lower levels of stigma were associated with hearing aid use than with hearing loss.
Foss/USA	To explore the "typical" hearing loss experience in fictional television.	Qualitative: textual analysis 2014	276 television episodes that involved deaf characters and storylines about hearing loss and deafness	Hearing loss was seldom shown in TV programs. For most characters, hearing loss developed suddenly and was restored by the end of the episode, with only four characters using hearing aids. Hearing loss was depicted as comical, embarrassing, and threatening to one's life. Characters attempted to mask their hearing difficulties from others.
Gleitman et al./USA	To examine the relationship between hearing impairment and hearing handicap.	Quantitative + one case study 1993	737 participants, mean age 59 years	Hearing impairment was the strongest correlate of scores on the Self Assessment of Communication among adults under the age of 65 years and on the Hearing Handicap Inventory for the Elderly among adults over 65 years.

(table continues)

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Table 1 (continued)

Reference/Country	Aim	Method/Type of review Year of publication	Participants	Results/Findings
Hétu/Canada	To describe the behavior and the meaning people ascribe to hearing impairment due to the attached stigma.	Descriptive & Thematic 1996	NS	Four themes were found: Reluctance to acknowledge hearing difficulties; Concealing signs of hearing impairment; Having a hearing difficulty triggers perceptions of deafness; Admitting hearing impairment as a major threat to social identity.
Hindhede/Denmark	To empirically explore how working-aged adults confront the diagnosis of hearing impairment.	Qualitative Face-to-face interviews followed by lengthy telephone conversations 2012	41 participants, mean age 58 years, recently advised to have hearing aids	For most participants, hearing impairment threatened social interactions. Many used tactics to conceal the hearing impairment so as not to damage their identity. Almost all participants stated that the hearing aid linked them to the undesirable characteristic of "being old."
Iler et al./USA	To explore the perceptions of elderly people towards their peers who wear hearing aids.	Quantitative/Experimental 1982	72 persons, mean age 74, divided in: No hearing aid experience; Being a spouse of a hearing aid user, and Hearing aid users	Age was found as a critical factor in determining when a hearing aid can cause a wearer to be stigmatized regarding appearance.
Johnson et al./USA	To obtain people's reactions to geriatric hearing aid wearers.	Quantitative 1982	290 students, mean age 22 years	More students agreed (45.7%) than disagreed (31%) that a senior citizen looks older when wearing a hearing aid. Almost half of the respondents (48%) agreed that a senior citizen looks less communicatively effective when wearing a hearing aid. However, a majority of the respondents disagreed with the statements that a senior citizen looks less intelligent (77%), less affluent (79.5%) and less sociable (65.75%) when wearing a hearing aid.
Johnson et al./USA	To investigate the visibility of different hearing instrument styles for their potential to reduce stigma.	Quantitative: Rating visibility on a 7-point scale 2005	150 Students, mean age 21 years	The visibility of the device was an issue for hearing aid wearers.

Table 1 (continued)

Reference/Country	Aim	Method/Type of review Year of publication	Participants	Results/Findings
Kelly-Campbell & Plexico/ New Zealand & USA	To gain an understanding of how a diverse group of couples live with hearing impairment.	Qualitative 2012	12 couples, mean age 57 years aids	All participants (with and without hearing impairment) reported experiencing stigma attached to hearing impairment and/or aging and expressed negative perceptions related to hearing aids and hearing care professionals. For the participants with hearing impairment, stigma affected their decision to wear hearing aids and disclose their hearing impairment to others.
Kochkin/USA	To build a consumer decisions model based on attitudes towards hearing aids of owners versus non-owners of hearing aids.	Market survey analyzing 1990	1,200 adults with perceived hearing loss	Non-owners reported less positive attitudes toward hearing instruments. Non-owners reported more positive attitudes regarding stigma (e.g. "makes me look old": 33.7% non-owners versus 38.8% owners).
Kochkin/USA	To quantify the reasons why hearing-impaired consumers reject hearing instruments.	Quantitative 1993	2,306 non-owners of hearing aids who reported having a hearing difficulty	40% of non-owners stated that stigma was a reason for non-purchase. The most frequently cited stigma-related reasons were: do not want to admit hearing loss in public (27%), being embarrassing to wear a hearing aid (27%), hearing aids are noticeable (25%), hearing aids make you look older (22%), hearing aids make you look disabled (20%).
Kochkin/USA	To determine the impact that cosmetics and stigma have on purchase intent for hearing instruments.	Quantitative 1994	2,952 hearing impaired non-owners, and 2378 hearing impaired owners	The factors most associated with purchase of hearing instruments were cosmetics and stigma (attractive, not embarrassing, old age image, visible). Among hearing-impaired non-owners, the less visible the hearing instrument the higher the purchase intent.
Kochkin/USA	To identify the main causes of hearing aid non-adoption.	Quantitative 2007	3,000 adults with hearing loss without hearing aids	Nearly half (48%) indicated that stigma contributed to their desire not to wear hearing aids.
Mulac et al./USA	To investigate young and old adults' impressions of elderly persons wearing hearing aids.	Quantitative/Experimental 1983	71 elderly persons, mean age 72 years; 70 university students, mean age 21 years	Both groups had similar negative biases toward elderly persons with hearing aids. The negative biases were greater for body than for post-auricular aids. Body aid wearers were perceived as being older and less effective in speaking situations than post-auricular aid wearers. Both hearing aid wearers were rated similarly less sociable than elderly persons not wearing hearing aids. No differences were found in ratings of intelligence or income.

(table continues)

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Table 1 (continued)

Reference/Country	Aim	Method/Type of review Year of publication	Participants	Results/Findings
Southall et al./Canada	To offer a brief summary of hearing loss stigma and to position hearing loss stigma within a model of stigma-induced identity threat.	Theoretical/Descriptive 2009	NS	Two keys dimensions of stigma were described in the case of progressive hearing loss: (a) the capacity of the stigmatized person to conceal the stigmatized attribute over time decreases; (b) the extent to which hearing difficulties become disruptive in social settings increases. Age of onset of hearing loss, the degree and type of hearing loss, and the mode of communication have an influence on the magnitude and the type of identity threat a person with hearing loss experiences.
Southall et al./Canada	To better understand how stigma impacts upon help-seeking activities of adults with an acquired hearing loss.	Qualitative: Audio-recorded semi-structured interviews 2010	10 participants with hearing aids; average age 65 years	Most respondents indicated going through a phase of denial and concealing following the identification of their hearing loss. These maladaptive coping (self-stigmatized) contributed to increased level of stress.
Southall et al./Canada	To identify factors that lead individuals to conceal or disclose their hearing loss in the workplace.	Qualitative 2011	12 participants with hearing aids or cochlear implants; average age 59 years	The main decision was to evaluate if they could function without disclosing. Social cohesion in the workplace influenced disclosure of hearing loss. Hearing loss often served as a barrier to social inclusion.
Wallhagen/USA	To explore dimensions of stigma experienced by older adults with hearing loss.	Longitudinal qualitative study 2010	87 dyads including a partner with hearing loss. Mean age of the person with hearing loss 73 years	Perceived stigma emerged as an influential factor in the process of making a decision to consult for services, purchasing hearing aids, and ultimately wearing hearing aids. Stigma was related to 3 factors: alterations in self-perception, ageism, and vanity and was influenced by dyadic relationships and external societal forces.

demands that might help facilitate communication, choosing not to wear hearing aids) was the most common stigmatic behavior endorsed by elderly persons with hearing problems. Other common stigmatic behaviors found included denial and distancing oneself from communicative interactions (Foss, 2014; Southall et al., 2010).

Consequences of stigma. A quarter of the studies ($n = 6$) examined the effect of stigma on self-perception and social identity of people with hearing impairment (Gleitman et al., 1993; Hetu, 1996; Hindhede, 2012; Southall et al., 2009, 2010; Wallhagen, 2010). Some studies indicated that having a hearing impairment is a major threat to social identity and threatens the stability of social interaction (Hetu, 1996; Hindhede, 2012; Southall et al., 2010; Wallhagen, 2010). One study (Southall et al., 2010) examined the impact of hearing loss stigma on help-seeking activities and showed that the respondents tended to seek help after going through a long phase of denial and concealing of the hearing loss, while the social stress increased and the hearing loss worsened.

Factors affecting usage of hearing aids and increasing stigma. Stigma was reported as a primary reason for not wearing hearing aids in a significant proportion of studies (33.3%) (Cienkowski & Pimentel, 2001; Johnson et al., 1982; Johnson et al., 2005; Kochkin, 1993, 1994, 2007; Mulac et al., 1983). The size and visibility of hearing aids were the main features associated with the reluctance to use them and with the stigma associated with them (Cienkowski & Pimentel, 2001; Johnson et al., 1982; Johnson et al., 2005). Four studies discussed the association between age and the stigma of using hearing aids (Cienkowski & Pimentel, 2001; Erler & Garstecki, 2002; Iler, Danhauer, & Mulac, 1982; Kochkin, 1990), with the assumption that as a young adult, the possibility that one will need a hearing aid because of an age-related hearing loss is more threatening and hence the stigma is greater (Cienkowski & Pimentel, 2001; Erler & Garstecki, 2002; Iler et al., 1982).

Methodological Issues

Studies' sample characteristics. Five of the 21 studies presented in Table 1 (23.8%) were performed among laypersons (i.e., persons who do not have hearing loss and are hearing aids naïve): two studies were conducted among students, two among women (one study among

elderly females, and the second among women aged 40 and over), and one study included students and elderly persons aged 65 and over. The rest of the studies were conducted among persons with hearing impairment: hearing aid users or persons with hearing impairment ($n = 8$), or among mixed samples, that is, couples that at least one of them had a hearing impairment ($n = 2$), experienced users and laypersons ($n = 1$), hearing impaired persons without a hearing aid, and hearing aid owners ($n = 1$). One study included a sample comprised of persons with no prior hearing aid experience, persons having a spouse who wore an aid, and persons using hearing aids.

Regarding the participants' age, 8 of the studies were conducted among adults (aged around 40–50 years), five were conducted among elderly persons (65 years and over), and two among young adults (students, 22 years mean age). Three studies included a wide age variety: old persons and students ($n = 2$), old persons and adults ($n = 1$).

Studies' design. All but one of the studies were cross-sectional; and more than half ($n = 13$) were quantitative studies. Regarding data collection, about a third (38.46%) of the studies were based upon filling in questionnaires regarding perceptions and self-assessment, and just over a quarter (28.57%) used an experimental methodology in which attitudes were assessed by presenting pictures of people wearing hearing aids. Five of the six qualitative studies included in the review were based on semistructured and in-depth interviews, and another one (Foss, 2014) used a textual analysis methodology.

Stigma assessment. The vast majority of the studies ($n = 18$) used nonstandardized measures to assess stigma. Ten studies developed self-report statements specifically for the study. Examples of the statements used include “If someone has a hearing loss, other people think of them as _____,” with the answers being a choice of semantic differentials (e.g., intelligent/stupid; Erler & Garstecki, 2002); “A senior citizen looks older when wearing a hearing aid than when not,” rated on a 5-point scale (Johnson et al., 1982); “What do you estimate this person's (who wears versus doesn't wear a hearing aid) socioeconomic status to be?” rated on a 5-point scale (Mulac et al., 1983).

Only three studies used previously validated instruments. These included the Hearing Attitudes in Rehabilitation Questionnaire (HARQ) (Brooks,

& Hallam, 1998), the Attitudes toward Loss of Hearing Questionnaire (ALHQ; Cienkowski & Pimentel, 2001), the Hearing Handicap Inventory for the Elderly (HHIE), and the Self Assessment of Communication (SAC; Gleitman et al., 1993). The HARQ is a 40-item standardized questionnaire, which includes five items regarding hearing loss stigma and nine items regarding hearing aid stigma. The ALHQ contains 72 items designed to assess the social impact of hearing loss, adjustment to hearing loss, denial of hearing loss, dexterity and stigma. The HHIE is a 10-item questionnaire developed to assess how an individual perceives the social and emotional effects of hearing loss. The SAC is a brief 10-item inventory that evaluates both the disability and handicap hearing domains.

Discussion

The present review presents the results of 21 peer-reviewed publications that investigated stigma in the area of acquired hearing impairment among older adults over a period of 33 years. The studies conducted concentrated on exploring the meaning and subjective experience associated with stigma, especially public and self-stigma. It is interesting to note that the wide range of publications dates has no significant effect on outcome (i.e., despite major changes in technology over time, the uptake and use of hearing aids reminded relatively low).

Several prominent findings emerged from this review.

The most notable finding was the dearth of studies based on a theoretical framework regarding the concept of stigma. Indeed, the majority of the studies included in the review (Kochkin, 1990, 1993, 1994, 2007; Wallhagen, 2010) were descriptive in nature, did not methodically examine conceptual dimensions of stigma, and defined stigma regarding hearing loss only through a list of stereotypes such as “old age,” “being deaf,” or “less sociable/friendly,” without further theoretical elaboration. The only exemption was the study by Southall and colleagues (2010) who used the identity threat model. This model, developed by Major and O’Brien (2005), conceptualize stigma through levels of analysis, including cognitive representations, situational factors, and personal variables, providing therefore an appropriate theoretical framework for the un-

derstanding of the unique characteristics of stigma regarding hearing problems. However, no other studies have continued this line of study or have examined the suitability of other theoretical models of stigma. This is surprising because in other health conditions such as mental illnesses (King et al., 2007), HIV (Wagner, Hart, McShane, Margolese & Girard, 2014), and Alzheimer disease (Werner, Goldstein & Heinik, 2011), conceptually clear and empirically based dimensions of stigma are reported as being the first step in advancing theoretical knowledge and its translation into applied steps such as intervention programs. Another important finding was that age is a major factor in determining when a hearing aid can cause a wearer to be stigmatized regarding appearance. On the one hand, findings of the studies suggested that younger age was associated with greater stigma (Cienkowski & Pimentel, 2001; Erler & Garstecki, 2002; Iler et al., 1982), but on the other hand, because of the increasing prevalence of hearing loss with age, it is stated that many people with hearing loss choose not to use hearing aids because of ageist stereotypes (Southall et al., 2010). However, because the majority of the studies comprised a limited range of ages, it was difficult to compare between age groups.

Finally, there was a consensus among the studies included in our review that concealing the hearing difficulties is the most common stigmatic behavior (Foss, 2014; Hetu, 1996; Hindhede, 2012; Southall et al., 2010; Southall et al., 2011), with the size and the visibility of hearing aids having a decisive effect on their use (or lack thereof) and on the stigma associated with it (Cienkowski & Pimentel, 2001; Johnson et al., 1982; Johnson et al., 2005). It should be noted that hearing aid advertisements today emphasize the small size, minimal visibility and cosmetic appearance of modern hearing aids. Although such advertisements address a reality and may enhance the chances of individuals deciding to seek treatment, it should be noted that they are based on the assumption and even a tacit agreement with the idea that hearing loss and the use of hearing aids are stigmatizing and should be hidden (Wallhagen, 2010).

Regarding methodological aspects, one of the most noticeable methodological limitations emerging from this review was the lack of a consistent measurement approach. As described in the Results section, most of the studies assessed

stigma using only one or more items developed for a specific study, with no attention to psychometric characteristics such as reliability and validity of the measures. In addition, there were large variations between the characteristics of the different studies' samples. To advance this body of knowledge, allow for comparison between studies and a translation of the findings into suitable interventions, the development and validation of standardized measures is needed.

Limitations of the Review

First, because to the best of our knowledge this is the first review to summarize knowledge in the area of stigma and hearing impairment in older persons, a scoping review rather than a systematic review was conducted. Thus we did not perform a critical appraisal as is suggested for a systematic review. Second, despite making every attempt to unearth the relevant literature, we cannot disregard the possibility that some studies may not have been identified. This is an inherent limitation of scoping reviews, which, in an effort to be specific, are prone to miss papers of importance. More specifically, because of its pioneering character, we have not included in the review gray literature (theses, internal reports, non peer-reviewed journals or books, and reports).

Finally, we did not limit our study to any specific type of design. Thus, the heterogeneity of the studies included might have limited our ability to draw conclusions. Future studies might want to consider reviewing separately qualitative and quantitative studies.

Despite these limitations, our scoping review allows us to raise several important research and clinical suggestions.

Research Suggestions

Undoubtedly, the current body of knowledge regarding stigma and hearing impairment is not sufficient. Conceptual and methodological progress must be made to improve the conceptualization and measure of stigma in this area. We strongly recommend, therefore, to evaluate and address issues surrounding the need for the following: (a) a unique definition of stigma in this area. This could be attained using qualitative designs to allow the exploration of the different experiences and components of stigma; (b) developing a unique, reliable, and theory-driven measure of stigma in the area of hearing impairment;

and (c) the use of innovative designs and statistical methods that are sensitive to the complexities of the concept of stigma.

Such steps have proven to be essential in other areas when trying to conceptualize and operationalize for the first time the concept of stigma, such as in the area of obesity stigma (Stone & Werner, 2012) or Alzheimer disease (Werner, Goldstein, & Buchbinder, 2010).

Clinical Suggestions

These conceptual and methodological suggestions might guide future research with an emphasis on intervention directions to deal with the stigma associated to hearing impairment. For example, in the area of mental illness, where the concept of stigma has been clearly conceptualized, we can witness the development of successful interventions for decreasing the negative consequences of stigma (Corrigan & Shapiro, 2010). We can hope a similar development will occur in the area of hearing impairment. This review might be a first step in this direction.

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