

**Barriers and Facilitators to Hearing Aid Uptake in Older Females:
A Qualitative Report**

by

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Abstract

Although hearing loss is one of the most prevalent chronic conditions among older adults in Canada, affecting more than 30% of the population over the age of 65 (Public Health Agency of Canada, 2006), it is surprising that only 15% to 25% of people with hearing loss actually use hearing assistive technology such as hearing aids (Cohen-Mansfield & Taylor, 2004a; Edwards & Jones, 1998; Gilhome Herbst, Meredith, & Stephens, 1991). A review by Jenstad and Moon (2011) of the literature on barriers and facilitators to hearing aid use reported 7 types of barriers and/or facilitators: effects of hearing loss on quality of life, cost, personality/psychological factors, stigma, degree of hearing loss, age, and gender.

The purpose of the current study was to use qualitative methods to further investigate the facilitators and barriers to hearing aid uptake as reported by females with age-related hearing loss. Nine women between 60 and 75 years of age and diagnosed with hearing loss were interviewed, five of whom had decided to get hearing aids while the remaining four had not. Through semi-structured interviews analyzed thematically, the overarching theme identified was dynamism. Dynamism is the interplay of factors that influence each individual's decision regarding hearing aid uptake. Within the overarching theme of dynamism, 4 themes were identified: self-perceived hearing, information gathering and informed decision making, influence of others, and associated cost. Specific clinical applications of the results include: the provision of unbiased sources of information regarding hearing and hearing loss, careful word choice of the clinician, and the need for rapport between the clinician and client. The results of this study underscore the need for qualitative research on hearing aid uptake in males and in other age groups, as well as the need for further examination of the impact of information gathering and the influence of others on hearing aid uptake.

Preface

This research has been approved by the Behavioural Research Ethics Board through the University of British Columbia on June 11, 2010. The certificate number assigned was H09-03405.

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1 Chapter: Introduction

Hearing loss is one of the most prevalent chronic conditions among older adults in Canada, found in more than 30% of the population over the age of 65 years (Public Health Agency of Canada, 2006). Despite its high prevalence, only 15% to 25% of those with hearing loss actually use hearing assistive technology such as hearing aids (e.g., Cohen-Mansfield & Taylor, 2004a; Edwards & Jones, 1998; Gilhome Herbst et al., 1991). Research has not only shown the benefits of using assistive technology such as hearing aids (e.g., Chisolm et al., 2007; Erber, 1994; Mulrow et al., 1990; Mulrow, Tuley, & Aguilar, 1992b), it has also shown that untreated hearing loss has a significant negative impact on psychosocial well-being (e.g., Anand & Court, 1989; Hetu, Jones, & Getty, 1993). The question of why, given the known benefits of treating hearing loss, people continue to be resistant to obtaining and using hearing aids is addressed here.

1.1 Age-Related Hearing Loss

With hearing loss impacting between 30% (Public Health Agency of Canada, 2006) and 50% (Cruickshanks et al., 1998; Wilson, Fleming, & Donaldson, 1993) of people 65 years and over, and up to 89.5% of those above 80 years of age (Cruickshanks et al., 1998), it is important to take a closer look at hearing loss in the older adult population.

Hearing loss in the older adult population is known as age-related hearing loss (ARHL), and has also been referred to as presbycusis. ARHL is typically due to a decrease in functioning of the inner ear and/or central auditory processing system (Jerger, Chmiel, Wilson, & Luchi, 1993; Weinstein, 2002). Changes often do occur in the middle ear with age as well, such as stiffening of the tympanic membrane or thinning of the joints between the middle ear bones, but these do not seem to have a significant impact on hearing, as

measured by standard clinical hearing tests (Weinstein, 2002). Within the inner ear or cochlea, however, the structures most changed over time are the hair cells. Although outer hair cells degenerate with age at a faster rate than inner hair cells, both types are affected in the majority of people with ARHL (Weinstein, 2002). Generally, the hair cells are more vulnerable in the basal end of the cochlea than the apical end; therefore, the pattern often seen in age-related hearing loss is a high frequency loss.

Decreased function of inner ear structures causes decreased hearing sensitivity for an individual, especially for high-frequency sounds. Because of the cell damage, not only can the individual experience a decrease in hearing sensitivity, he or she may also experience a distortion of the signal, even when the signal is presented at levels well above hearing threshold (Jerger et al., 1993). With age, some individuals may also begin to experience difficulty with speech comprehension, even more than expected given their pure-tone audiogram results. This may indicate that there are deficits at a higher level in the auditory pathway, affecting central auditory processing (Jerger et al., 1993).

While the mean self-reported onset age of hearing difficulties in a sample of hearing-impaired older adults was 59.4 years (Gilhome Herbst et al., 1991), the degree and prevalence of hearing loss both increase or become worse with increasing age (Cruickshanks et al., 1998; Lee, Matthews, Dubno, & Mills, 2005). For example, in a longitudinal study examining age-related changes in hearing thresholds in 60 to 81 year olds, the average rate of hearing threshold change was about 0.7 dB per year at 250 Hz, increasing to about 1.2 dB per year at 8000 Hz (Lee et al., 2005). Reported in a different way, Cruickshanks et al. (1998) found that for every additional 5 years of age, the risk of hearing loss increases by almost 90 percent. It was also found that the rate of change increased in participants 70 years and

older, when compared to groups composed of 60 to 64 years and 65 to 69 years (Lee et al., 2005). This pattern of rate change was seen in both male and female groups, but only female groups showed a statistically significant increase (Lee et al., 2005). Therefore, although the age of onset of ARHL is often around 60 years (e.g. Gilhorne Herbst et al., 1991), the older an individual becomes, or the older the group being studied, the more likely they are to show a greater effect of ARHL.

1.2 Untreated Hearing Loss

A number of studies over the past two decades have examined the effect of untreated hearing loss (Anand & Court, 1989; Espmark, Rosenhall, Erlandsson, & Steen, 2002; Gopinath et al., 2009; Hetu et al., 1993; Mulrow et al., 1990). They found that if left untreated, age-related hearing loss could not only have a significant negative impact on the psychosocial functioning, social behaviour, communication skills, and cognitive functioning of the individual with the hearing deficit but could also have an impact on those with whom they were in close contact as well.

An overview of the literature about the costs of not treating hearing loss reported psychosocial consequences as one of a number of negative impacts of untreated hearing loss (Pallarito, 2010). The psychosocial impact of untreated hearing loss has been reported by a number of other researchers as well (e.g. Anand & Court, 1989; Hetu et al., 1993; Mulrow et al., 1990). For example, a study on the impact of hearing loss within a seniors' residence suggested that irritability and changes in social behaviour could be indicative of a hearing loss (Anand & Court, 1989). It was also noted that people with a hearing impairment tend to report a sense of isolation during meetings, group conversations, and parties, and go out less often in order to avoid group interaction (Hetu et al., 1993). Similarly, hearing impairment can create difficulties in intimate and family relationships, due to misunderstandings as a

result of communication challenges (Hetu et al., 1993). Spouses of individuals with a hearing impairment reported that the hearing loss limits companionship, hinders intimate communication, and creates tension between the couple (Hetu et al., 1993). It has also been found that the presence of depressive symptoms is closely associated with bilateral hearing loss (Gopinath et al., 2009; Mulrow et al., 1990). However, in subjects who report daily hearing aid use, the report of depressive symptoms is significantly improved (Gopinath et al., 2009).

Another effect of untreated hearing loss is the impact on an individual's cognition (Pallarito, 2010). In 2009, Tun, McCoy, and Wingfield conducted a study in which the effect of hearing loss and aging on cognitive tasks was examined. The subject group was divided into four groups of 12 listeners each, the first being young adults with good hearing, the second, young adults with poor hearing, the third, older adults with good hearing, and the fourth, older adults with poor hearing. The results showed that on dual-attention tasks, the listeners with poor hearing, especially those in the older age group, performed significantly poorer than those with good hearing (Tun et al. 2009). Similarly, Anand and Court (1989), as well as Mulrow et al. (1990), stated that there was a relationship between cognitive functioning and hearing loss. Both studies proposed that the use of amplification may ameliorate the presence or appearance of cognitive dysfunction, although neither was able to state whether this was a lasting effect; therefore, more research is required.

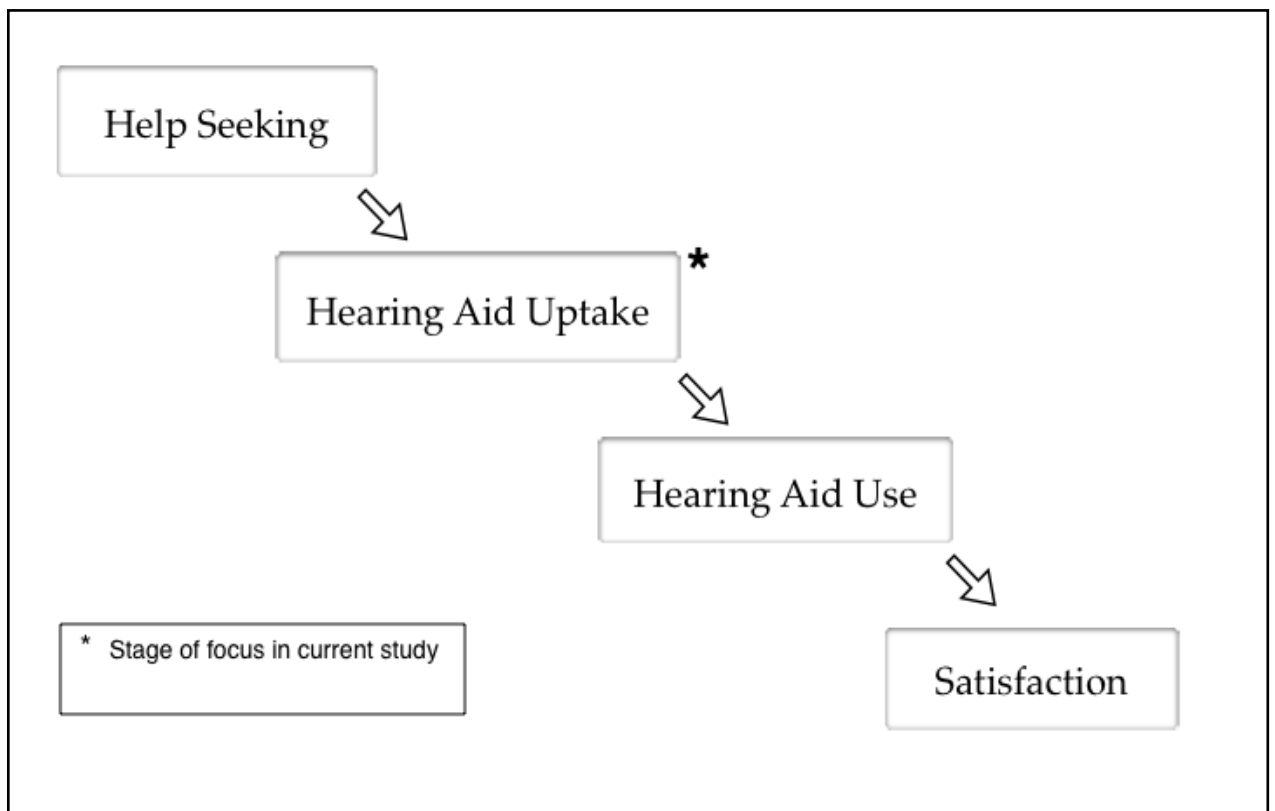
The considerable impact of untreated hearing loss, especially with regard to older adults in terms of their quality of life (Espmark et al., 2002; Mulrow et al., 1990), needs to be a concern not just for those in the field of audiology, but for all health professionals. As the research findings reported above suggest, it would be easy to misunderstand and/or mistreat

the symptoms associated with hearing loss, such as depressive symptoms and decreased cognitive functioning. Therefore, it is important to identify hearing loss early and offer strategies or devices to help mitigate these effects.

1.3 Hearing Healthcare Process

According to Knudsen, Oberg, Nielsen, Naylor, and Kramer (2010) there are four central points on the pathway of the hearing healthcare journey as shown in Figure 1.1: help-seeking, hearing aid uptake, hearing aid use, and satisfaction. These four steps outline the process related to amplification, from before the decision to seek help for hearing loss has been made, to well after treatment has commenced and an evaluation given.

Figure 1.1: Four Stages of the Hearing Healthcare Process



1.3.1 Help-seeking

The first step in the process of obtaining amplification is the recognition of a possible hearing impairment, and a need to find more information about hearing loss and/or hearing aids. This may involve mentioning concerns about hearing impairment to a family physician, asking to be referred to an ear, nose, and throat (ENT) specialist or finding an audiologist or hearing aid clinic.

Even when individuals recognize the presence of their hearing loss, a high percentage do not take the step of seeking help for their impairment (Duijvestijn et al., 2003; Gilhorne Herbst et al., 1991). One study conducted in the United Kingdom by Gilhorne Herbst et al. (1991) compared the implications of ARHL on two population samples of adults over the age of 70 years, one from London and one from Wales. Although the study participants had already admitted to having hearing loss, 34% in London and 25% in Wales reported they had never gone to a doctor regarding their loss. A separate study confirms these findings: among a population of adults aged 55 years and older, 59% of the hearing-impaired population had not sought help for their hearing impairment (Duijvestijn et al., 2003). Research has shown the factors that influence help-seeking behaviour for hearing impairment are dependent on the degree of hearing-related complaints, social pressure (Carson, 2005; Duijvestijn et al. 2003; Knudsen et al., 2010) and a person's willingness to try a hearing aid (Duijvestijn et al., 2003).

1.3.2 Hearing aid uptake

Once people with hearing loss begin the process by seeking help for their hearing loss, it cannot be assumed they will obtain hearing aids or some assistive technology. For example, of the 66 individuals with hearing loss who sought help from their family physician in London, England, Gilhorne Herbst et al. (1991) reported that only 29 (44%) actually

obtained hearing aids. This finding is confirmed by the literature showing that despite the high prevalence of hearing loss, only a small percentage of people with hearing loss own hearing assistive technology such as hearing aids (Edwards & Jones, 1998; Kochkin, 1992; Kochkin, 1993).

In a market research survey conducted in the United States, 80 000 members of a national research panel, balanced in terms of age of household, size of household, family versus non-family household, income, and state, were contacted (Kochkin, 1992). Kochkin (1992) found that over 13 000 of the participants reported having a hearing impairment, but only 23% of those reporting hearing impairment had hearing aids at the time of the survey. Edwards and Jones (1998) and Gilhome Herbst et al. (1991) reported similar statistics, with 16% of the sample of adults 65 years and older in the former study owning a hearing aid, and 21% to 25% of the sample of adults over 70 years of age with hearing impairment owning a hearing aid in the latter study. Given that up to 50% of the aging population have hearing loss and may benefit from a hearing aid, such figures regarding hearing aid use in the general population are low, again confirming that many individuals who could benefit from hearing aids are not using them. As indicated in Figure 1.1, the focus of the present study is on this stage of hearing aid uptake.

1.3.3 Hearing aid use

Of those who have made the decision to obtain hearing aids, many individuals do not wear them or do not wear them consistently (Cohen-Mansfield & Taylor, 2004a; Gimsing, 1992; Lupsakko et al., 2005). Therefore, the next consideration in the hearing healthcare pathway is the use of hearing aids once obtained. Gimsing (1992), in a study that took place in Denmark, reported that 26 (7%) of the total 363 hearing aids issued in his study, were considered unused. More recently, a study conducted in Finland of 700 subjects over the age

of 75 years, randomly selected from the general population, showed that of the sample's 100 hearing aid owners, 52 (55%) were full-time users, 19 (20%) were part-time users and 24 (25%) were non-users (Lupsakko et al., 2005). Similarly, a study that examined the prevalence rates of hearing aid use in nursing homes, found that of the residents with probable hearing loss, including those who had obtained hearing aids and those who had not, that only 14% to 30% actually used hearing aids (Cohen-Mansfield & Taylor, 2004a). The use of other assistive technologies or strategies was assessed, but the reported response was negligible, at 2% of the residents with probable hearing loss.

Some complaints from nursing home residents who owned hearing aids were that the aids did not work properly, did not fit well or were uncomfortable, or that they were either too difficult to insert or were inconvenient (Cohen-Mansfield & Taylor, 2004b). It has been suggested, however, that perhaps the greater underlying issue, in terms of hearing aid use or hearing aid adherence, was an individual's general attitude towards hearing aids (Knudsen et al., 2010). Lockey, Jennings, & Shaw (2010), through the use of qualitative interviews with four female hearing aid users between the ages of 60 and 85 years, concluded that hearing aid use was not simply based on positive and negative characteristics of the hearing device. Rather, hearing aid use was part of a much more complex factor, the role of hearing in participation. Hearing aid use alone is not able to adequately reverse all limitations related to social activity and social participation. It was therefore suggested that such a manifold interaction of influences on hearing aid use in hearing aid owners needs further investigation (Lockey et al. 2010).

According to the above findings, many people who have a hearing impairment do not obtain hearing aids and of those who do, a significant percentage do not use them

consistently, if at all. While it might be surmised from the lack of hearing aid usage in the general population that hearing aids are not helpful or necessary, research has shown the opposite, that hearing aids can be beneficial (e.g. Chisolm et al., 2007; Erber, 1994; Mulrow et al., 1990; Mulrow et al., 1992b).

1.3.4 Satisfaction

There are a number of studies reported in the literature in which hearing aid satisfaction has been explored (Jerram & Purdy, 2001; Knudsen et al., 2010; Uriarte, Denzin, Dunstan, Sellars, & Hickson, 2005; Wilson & Stephens, 2003). According to the in-depth review presented by Knudsen et al. (2010), results were conflicting in regards to many of the factors thought to influence satisfaction. Motivation source, pre-fitting attitudes, pre-fitting expectations, counselling, and pre-fitting hearing sensitivity all had some research findings supporting a relationship between the specific factor under study and hearing aid satisfaction, but all the above factors have also had research showing there is no relationship (Knudsen et al., 2010). On the other hand, self-reported hearing problems, or the self-perceived effects of hearing loss on the limitation of activity and the restriction of participation, were consistently shown to be positively related to hearing aid satisfaction (Hosford-Dunn & Halpern, 2001; Knudsen et al., 2010; Mulrow, Tuley, & Aguilar, 1992a; Takahashi et al., 2007; Uriarte et al., 2005; van den Brink, Wit, Kempen, & van Heuvelen, 1996).

While research has confirmed the relationship between self-reported hearing problems and hearing aid satisfaction, more data are necessary to confirm the impact that other factors, such as motivation source, pre-fitting attitudes, expectations, etc., have on hearing aid satisfaction. Therefore, despite the significant research conducted in the area of hearing aid satisfaction, results are still inconclusive for many of the explored factors;

consequently, it is still quite difficult to predict what will likely lead to hearing aid satisfaction.

Each of the stages outlined: help-seeking, hearing aid uptake, hearing aid use, and satisfaction, has factors that influence the successful passage through the stage. While all of the factors and stages interact to form a “successful” or “unsuccessful” hearing aid user, it is helpful to identify at what point the breakdown in the pathway occurs for an individual and what were the specific influencing factors. By better identifying the variables that impact specific stages in this hearing healthcare pathway, clinicians may be better able to ensure, first of all, that individuals will seek out help for their hearing impairment from the appropriate source, and secondly, that suitable treatment options for that individual are explored.

1.4 Benefits of Hearing Aid Use

Once the individual with hearing loss has acquired hearing aids, with consistent use a number of benefits become apparent over time (Chisolm et al., 2007; Mulrow et al., 1990; Mulrow et al., 1992b; Vuorialho, Karinen, & Sorri, 2006). For example, Mulrow et al. (1990 & 1992b) found that with consistent use of a hearing aid, at the four-month follow-up, hearing aid users showed significant improvement relative to their pre-fitting scores and scored significantly better than a control group of non-hearing aid users, in the domains of social and emotional function, as measured by the Hearing Handicap Inventory in the Elderly (HHIE), and in communication function, as measured by the Quantified Denver Scale of Communication Function. Some of these benefits were identifiable as early as six weeks post-fitting, when appropriate, disease-specific measures were used to determine benefit (Mulrow et al., 1990). There were also small but significant improvements in mental status scores and depression scores (Mulrow et al., 1990).

Vuorialho et al. (2006) also reported improvements in emotional and social functioning as well as communication skills with consistent hearing aid use. Before the hearing aid fitting, 70% of the hearing-impaired participants reported feeling handicapped because of their hearing loss, whereas at six months post-fitting the number of participants reporting handicap had dropped significantly (Vuorialho et al., 2006). In regards to the benefit to social relationships and emotional function, it was also reported that arguments with family members had decreased significantly (Vuorialho et al., 2006). Further confirmation of the benefit of hearing aid use was shown in a systematic review with meta-analysis, where it was concluded that hearing aid use decreased the psychological, social, and emotional effects of hearing loss on adults, thereby decreasing the impact on an individual's health-related quality of life (Chisolm et al., 2007).

It is important to consider that it is not only hearing aids that have shown an improvement in quality of life for the hearing-impaired population. Other technologies and devices are available as well, such as FM systems, loop systems, television listening sets, etc., which have been shown to benefit the user. Although there is not as much research on the benefit of these devices as there is on the benefit of hearing aid use, Harkins and Tucker (2007) conducted an internet survey to determine who used assistive listening devices and in what environments. While there is not a lot of detail available about the specific benefits of each type of device, it is clear that there are certain situations in which the user rates the use of assistive listening devices as very beneficial, specifically in group settings, and as an audience member in group settings (Harkins & Tucker, 2007).

1.5 Barriers and Facilitators to Hearing Aid Use

Given the potential benefit of amplification to communication and psychosocial factors for those with hearing loss, it is important to understand what leads individuals to the

decision to get or not to get hearing aids, and consequently, what facilitates the use of hearing aids. A number of studies over the past couple of decades have reported barriers to obtaining or using hearing aids (Cohen-Mansfield & Taylor, 2004b; Franks & Beckmann, 1985; Helvik, Wennberg, Jacobsen, & Hallberg, 2008; Knudsen et al., 2010; Kochkin, 1993; Laplante-Levesque, Hickson, Worrall, 2010; Lockett et al., 2010; Lupsakko et al., 2005; Jenstad & Moon, 2011; Meister, Walger, Brehmer, von Wedel, & von Wedel, 2008; Piercy & Goldstein, 1994; Southall, Gagne, & Leroux, 2006). A systematic review on the topic by Jenstad and Moon (2011), which helped make order of the available data, presented seven common themes found across the literature.

The first of the seven factors related to hearing aid uptake, as identified in the literature by Jenstad and Moon (2011), was the effect of hearing loss on quality of life. It was suggested that individuals who do not find their hearing loss significant enough to limit activity or restrict participation are more likely to reject hearing aids, but, as the effect of the hearing loss increases, would be more willing to obtain hearing aids (Chang, Ho, & Chou, 2009; Garstecki & Erler, 1998; Helvik et al., 2008; Humes, Wilson, & Humes, 2003; Meister et al., 2008; Palmer, Solodar, Hurley, Byrne, & Williams, 2009). For example, Chang et al. (2009) found that an individual's score on the Hearing Handicap Inventory for the Elderly - screening version (HHIE-S) had a higher positive predictive value for detecting those who felt hearing aids were necessary than did audiometric screening. Similarly, Palmer and colleagues (2009) suggested that simply the question, "On a scale from 1 to 10, 1 being the worst and 10 being the best, how would you rate your overall hearing ability?" may be useable in a clinic setting to determine the likelihood of following through with a recommendation for amplification. Based on the literature, the effect of hearing loss on

quality of life is not necessarily directly related to audiometric degree of hearing loss, but the individual's perceived quality of life related to hearing impairment is definitely a factor in hearing aid uptake.

The second factor related to hearing aid uptake, as reported by Jenstad and Moon (2011), was stigma. While stigma is a commonly-discussed barrier to hearing aid use (Franks & Beckmann, 1985; Garstecki & Erler, 1998; Kochkin, 2007; Meister et al., 2008, Wallhagen, 2010), consistency in the *predictability* of stigma acting as a barrier to hearing aid uptake was not found across the literature. For example, Franks and Beckmann (1985) asked participants to rank how strongly they agreed with statements related to reasons for nonuse of hearing aids. Of 36 total items, concern with drawing attention to the handicap, or stigma, was ranked as the number 2 concern for participants (Franks & Beckmann, 1985). Likewise, Kochkin (2007) found that almost half of his respondents reported that stigma contributed to their reasoning for not wearing hearing aids, and he felt that the participants may have actually understated the impact of stigma on their decision. In contrast, although stigma or public reaction to hearing aids was of greater concern to those who did not follow through with hearing aid use, Garstecki and Erler (1998) reported that it was the least important factor related to hearing aid use in their study examining hearing aid adherence in older adults. Similarly, while Meister et al. (2008) did find a significant relationship between negative perception of hearing aids by others and willingness to use hearing aids, it only accounted for 8% of the variability in willingness to use aids. The strength of this relationship was significantly less than that between willingness to use hearing aids and the expectation that hearing aids would have a positive effect on quality of life.

The third factor reported by Jenstad and Moon (2011) was degree of hearing loss: the worse the hearing thresholds, the greater the likelihood of hearing aid use (Chang, et al., 2009; Chao & Chen, 2008; Garstecki & Erler, 1998; Helvik, et al., 2008; Humes, et al., 2003). Although degree of hearing loss is a factor in hearing aid uptake and adherence, this relationship is also affected by the perceived impact of the hearing loss on and by the individual with the impairment (Chang, et al., 2009).

According to Jenstad and Moon (2011), the fourth factor affecting hearing aid use was personality or psychological factors. Research has shown that individuals seeking hearing aids differ from the general public in terms of personality characteristics (Cox, Alexander, & Gray, 2005). Specifically, on the personality profile used by Cox et al. (2005) those who sought amplification showed lower scores for Neuroticism and Openness and higher scores for Agreeableness. A low score on the Neuroticism scale generally suggests a person is more calm, confident, and optimistic, as well as less anxious, tense, and irritable, than those with a higher score. Those who score lower on the Openness scale are generally more conventional, practical, and cautious than those who score higher. For Agreeableness, those who score higher generally have higher trust in the motivations of others, and are forgiving, generous, and tolerant (Cox et al., 2005). According to Cox et al. (2005) individuals who sought hearing aids had higher levels of internal locus of control than the age-matched general population. It has also been suggested that the use of coping strategies influences the likelihood of obtaining a hearing aid, as those who reported less use of maladaptive behaviours to deal with their hearing loss were more likely to reject amplification (Helvik, et al., 2008).

The fifth factor was cost, which was reported as a significant influencing variable in three of the studies reviewed by Jenstad and Moon (2011) (Franks & Beckmann, 1985; Garstecki & Erler, 1998; Kochkin, 2007). Despite the fact that cost was ranked as the number one reason for hearing aid rejection (Franks & Beckmann, 1985), in a more recent study, it was not found to significantly account for the variance in willingness to use hearing aids (Meister et al., 2008). Therefore, although cost has been reported to influence hearing aid uptake (Franks & Beckmann, 1985; Garstecki & Erler, 1998; Kochkin, 2007), the findings by Meister et al. (2008) suggest that there is some inconsistency in the ability of cost alone to predict hearing aid uptake. Another consideration related to cost is affordability versus perceived worth of hearing aids. For example, Kochkin (2007) found that 64% of the respondents reported they could not afford a hearing aid while 45% of respondents stated hearing aids were not worth the expense. This difference shows the need for distinction between people who want to purchase hearing aids, but cannot afford them, and those who can afford the hearing aids, but feel the aids are not worth the cost, since financial constraint is a legitimate reason for non-adoption of hearing aids for many people, yet it is viewed by some clinicians as a “convenient form of denial” (Kochkin, 2007, p. 37).

Age was the sixth factor related to hearing aid uptake as reported by Jenstad and Moon (2011). According to Helvik et al. (2008) and Hidalgo et al. (2009), the older the person is, the lower the likelihood of hearing aid rejection. Conversely, Uchida et al. (2008) found that age is inversely related to hearing aid use, which means that hearing aid use decreases as age increases. Evidently, there is still some conflicting data regarding the influence of age on hearing aid uptake.

The seventh and final factor reported by Jenstad and Moon (2011) was gender, which interacts with stigma, degree of loss, and locus of control to predict hearing aid adherence (Garstecki & Erler, 1998). It was shown that females who had and used hearing aids were significantly more likely to show internal locus of control than both females who did not use hearing aids and males who did (Garstecki & Erler, 1998). Also, although significant differences were not reported, females who did not use hearing aids had consistently higher depression scores than any other groups (Garstecki & Erler, 1998). In addition, female hearing aid users were reported to differ significantly from male hearing aid users in that they were more likely to use nonverbal strategies of communication, to place greater importance on effective communication in social situations, experience more anger and impatience associated with hearing loss, and have more negative feelings in everyday communication (Garstecki & Erler, 1998). These and other gender differences noted by Garstecki and Erler (1998) demonstrate that there are significant differences between males and females with regards to the barriers and facilitators to hearing aid use. Such differences have warranted a number of studies conducted on attitudes towards, and use of, hearing aids in gender-specific populations (Erler & Garstecki, 2002; Garstecki & Erler, 2001; Lockey et al., 2010).

In sum, examination of the literature on factors relating to hearing aid use found seven themes reported as influential in hearing aid uptake: quality of life, stigma, degree of loss, personality, cost, age, and gender (Jenstad & Moon, 2011). The majority of the reviewed literature was quantitative and researcher-driven in nature. For example, some researchers gave participants surveys with a limited number of items to rate the impact of each factor on their hearing aid use (Franks & Beckmann, 1985; Kochkin, 1993; Kochkin, 2007). Other researchers had participants complete questionnaires and inventories such as

the HHIE and depression scales to determine the relationship between those factors and hearing aid use (Garstecki & Erler, 1998; Helvik et al., 2008; Hidalgo et al., 2009). There have been qualitative studies conducted examining influencing factors related to help-seeking for hearing loss (Carson, 2005), as well as related to hearing aid and assistive technology use (Lockey et al., 2010; Southall et al., 2006). Carson (2005), using qualitative interviews, journal writing, and observations of women between the ages of 72 to 82 years, developed a model to represent influencing factors on help-seeking behaviour for hearing impairment. Lockey et al. (2010) conducted in-depth narrative interviews with women who owned hearing aids and were between the ages of 60 and 85 years. The purpose of their study was to understand the experiences had by these women of their use and non-use of hearing aids in everyday life, in order to find ways to promote hearing aid use in non-users (Lockey et al., 2010). These qualitative or participant-driven studies add richness to the data, through descriptive narratives and subjective reports, but to date, the qualitative studies have examined either help-seeking or hearing aid *use*, not *uptake*. Therefore, it is important to use qualitative methods to further develop the knowledge regarding hearing aid uptake to explore that stage of the pathway for individuals with hearing loss.

1.6 Qualitative Research Methodology

There are a number of methodological options available in qualitative research, such as ethnography, ethnoscience, qualitative ethology, ethnomethodology, phenomenology, and grounded theory. Generally, the purpose of the study directs the decision of the specific methodology upon which to base the research. Two approaches that have been used previously to examine stages in the hearing healthcare pathway are *phenomenology* and *grounded theory*.

Phenomenology originated in the field of philosophy and focuses on human meaning. In phenomenology, interviews are typically used in order to determine, “What is it like to have a certain experience?” (Morse & Field, 1995). Researchers attempt to answer this question by obtaining a description of a specific situation or experience had by the participant. In order to fully understand the experience from the participant’s perspective, which is the goal of phenomenology, the interviewer and researcher must set aside any prior thoughts, conceptions, or judgments they may have, so that they can fully hear and understand the description presented by the participant. While the writing of phenomenological research can be either descriptive or interpretative, it is generally written as a narrative in a way that best describes the experience from the perspective of the participant, but is open to varied interpretations depending on the experience of the reader (Dahlberg & Ashworth, 2009; Flood, 2010; Morse & Field, 1995). The study conducted by Lockey et al. (2010) provides an example of phenomenological qualitative research in which the experience of hearing aid use and non-use was explored and reported.

Grounded theory was originally developed within the field of sociology. In contrast to phenomenology, where experiences are simply described, the purpose of grounded theory is to generate theories in order to explain observed human behaviour. The theories develop from relationships and associations between concepts and categories that emerge throughout data collection, which are then used to form a conceptual model. Data collection is typically done through unstructured interviews, observations, and other fieldwork techniques. In this kind of research, it is not uncommon for the literature review to take place later in the research process and for the hypothesis to develop from the data collection and analysis, because the researcher needs to allow the concepts to develop directly from the data and

leave out any preconceived ideas and expectations (de Carvalho Dantas, Leite, de Lima, & Stipp, 2009; Dey, 1999; Morse & Field, 1995). Carson (2005) provides an example of grounded theory to study help-seeking in individuals with hearing impairment, in order to create a model of the interaction between self-assessment, help-seeking, and outcome.

It is also possible to have qualitative research that does not align precisely with any of the above research methodologies. Caelli, Ray, & Mill (2003) referred to this as a generic approach to qualitative research, while Sandelowski (2000) referred to it as qualitative descriptive studies. The definition of generic qualitative research according to Caelli et al. (2003) is a study that, while definitely qualitative in nature, does not focus on one known methodology. Rather, it either combines a number of methodologies or claims no methodological approach whatsoever. By acknowledging the presence and credibility of generic or descriptive qualitative research, it prevents the confusion of misclassifying a study as a specific methodology when in actuality it is truly generic, containing some aspects of several other methodologies (Sandelowski, 2000).

The method of data analysis is a separate consideration in qualitative research. Some examples of data analysis are content analysis, question analysis, and thematic analysis, the last of which is of the most interest here. In thematic analysis, common threads or themes are found and identified throughout an interview or a set of interviews (Braun & Clarke, 2006; Morse & Field, 1995). Often the themes are not obvious and the researcher must step back, look at the interview in its entirety, and review memos and fieldnotes to identify a given theme. The main characteristic of thematic analysis is that the themes emerge from the data and may only be indicated by the data rather than appear as concrete entities specifically stated by the participant (Morse & Field, 1995).

1.7 Research Intent

Given the prevalence of age-related hearing loss, impact if left untreated, and considerably low rate of actual hearing aid usage among hearing-impaired adults, despite the known benefits of assistive technology, it is important to explore factors that influence hearing aid use in this population. In order to fully explore this topic and to ensure that individuals with hearing loss are getting the treatment they require, it is important to consider what facilitates hearing aid uptake, as well as what does not facilitate hearing aid uptake for older adults who would benefit from hearing aid use. By identifying possible barriers and facilitators to obtaining amplification, methods to overcome barriers to hearing aid uptake and subsequent use can be developed. The purpose of this study was to use qualitative interviews to further investigate, via thematic analysis, the facilitators and barriers to hearing aid uptake as reported by females with age-related hearing loss.

The focus of this study was on the decision point of hearing aid uptake as indicated in Figure 1.1, rather than the other three stages, help-seeking, hearing aid use, or satisfaction. As discussed by Knudsen et al. (2010), it is possible for one factor to have a very different effect on each of the four different stages. It was, therefore, most beneficial for the purposes of this study to focus on one of the four outlined points in the hearing healthcare pathway. The stages of help-seeking and hearing aid use have previously been examined specifically in the older adult female population using qualitative methodology (Carson, 2005; Lockey et al., 2010), but factors that influence hearing aid *uptake* have not been qualitatively researched. The goal for this research was to fill the gap in research in the hearing healthcare pathway between help-seeking and hearing aid use.

The decision to interview female participants only was based on the literature showing that there are significant differences in the factors that influence or predict hearing

aid use in males and females (Garstecki & Erler, 1998). It has also been suggested that gender is a predictor of reporting hearing loss in general, and that, more specifically, males were more likely to report hearing impairment than females (Corna, Wade, Streiner, & Cairney, 2009). Therefore, since gender is a known variable for reporting and seeking treatment for age-related hearing loss (Corna et al., 2009; Garstecki & Erler, 1998), in order to successfully identify common themes of factors influencing hearing aid uptake across a homogenous group of participants, only females were interviewed.

The target age of participants was chosen based on the likely onset of ARHL. Because ARHL is, on average, reportedly noticed beginning at age 60, and because many of the studies exploring age-related hearing loss include people 60 years of age and older, it was an appropriate starting age for inclusion. The age range was kept fairly small, up to age 75 years, due to the fact that it has been shown that with increased age comes a probable decreased likelihood of hearing aid rejection (Helvik et al., 2008; Hidalgo et al., 2009), potentially implying that the factors influencing hearing aid uptake change with age.

The current study has some characteristics of both grounded theory and phenomenology, using a combination of the methodologies described by Carson (2005) and by Lockey et al. (2010). Connections and relationships were identified between concepts and categories in the data, as in grounded theory, while the questions surrounded an experience or event, as in phenomenology. Yet, the connections between concepts and categories did not become a theoretical model, and rather than describe the experience of an event, the researcher extracted themes related to factors influencing hearing aid uptake, through the use of thematic analysis. Therefore, this study is best described as having a generic or

descriptive qualitative methodology, since it has characteristics of more than one qualitative methodology but does not completely fulfill the theoretical framework of either.

2 Chapter: Methods

2.1 Participants

Eleven female participants were interviewed during the course of this study and were reimbursed \$15.00 for their time. The data from two participants were not included in the analysis, because during the course of the interviews it was found that they did not meet inclusion criteria due to previous long-term use of hearing aids and/or hearing loss with known etiologies that were not related to age. The remaining nine women were all between the ages of 60 and 75 years of age and had all received recommendations to obtain a hearing aid by a hearing health professional. Participant demographics are presented in Table 2.1, where pseudonyms are used for participant anonymity.

Table 2.1: Participant Demographics

| Participant | Age (years) | Marital Status | Degree of hearing loss | Decision to obtain hearing aid(s) |
|-------------|-------------|----------------|-----------------------------------------------------------|---------------------------------------------------|
| Mary | 70 | Married | LE & RE: Mild sloping to severe above 750 Hz | No hearing aids |
| Linda | 75 | Married | LE & RE: Moderate steeply sloping to severe above 1500 Hz | No hearing aids – soon, but no appointment booked |
| Barbara | 62 | Single | LE: Mild sloping to severe RE: Moderate to severe | Yes - when funding approved and available |
| Patricia | 68 | Widowed | LE & RE: Mild sloping to severe | No hearing aids |
| Carol | 67 | Single | LE & RE: Mild sloping to severe | Yes – fitting appointment booked |
| Sandra | 62 | Married | LE & RE: Mild to severe above 1500 Hz | No hearing aids |
| Nancy | 70 | Single | LE & RE: Mild to severe | Yes – owns bilateral hearing aids |
| Sharon | 61 | Married | LE: Severe rising to mild RE: Mild above 3000 Hz | Yes – owns Bi-CROS system |
| Judith | 67 | Single | LE & RE: Mild to severe at 2000 Hz and above | Yes – owns bilateral hearing aids |

Note. LE = Left ear, RE= Right ear

Of the nine participants, five were either hearing aid users or had made the decision to obtain hearing aids and had begun that process. The remaining four women had either decided they did not want hearing aids at that time or were still undecided. The participants who were hearing aid users reported the barriers they encountered in their journey of obtaining aids, as well as the facilitators that eventually lead them to their decision point.

Those who were not hearing aid users reported their barriers to obtaining hearing aids, as well as their predictions of what might facilitate their hearing aid uptake.

2.2 Positionality of Researcher

As an audiology student, finishing more than 2 years of clinical training, I, as the interviewer/researcher, was biased as an audiologist and entered this research study from that perspective. In creating the interview schedule and during the course of the interviews, I had a tendency towards hearing aid specific questions and had the assumption that the “correct” treatment choice was to say yes to hearing aids, despite the fact that hearing aids are not the only solution for coping with age-related hearing loss, or for decreasing the associated negative symptoms or impacts on quality of life.

It was also difficult at times in the interviews to remain an objective listener and to avoid taking the role of clinician. Although I attempted to remain as objective as possible, some participants asked questions or made comments expecting a response as from an audiologist or clinician. In most cases, as the interviewer, I attempted to reframe the question in a way that encouraged the participant to continue telling her story, or else told the participant that her questions would be addressed following the interview.

2.3 Materials and Procedures

Participants were recruited through advertising at local hearing clinics, local hard of hearing associations, public notice boards, and word of mouth. A copy of the recruitment poster can be found in Appendix A. Qualitative interviews were conducted with each of the participants on an individual basis at a comfortable location for them, either at their home, the University of British Columbia, their hearing clinic, or a local coffee shop. The participant was first asked to read and complete the consent form, as shown in Appendix B,

followed by the formal interview that lasted up to 60 minutes. The interviewer spent between 60 to 90 minutes with each participant in total.

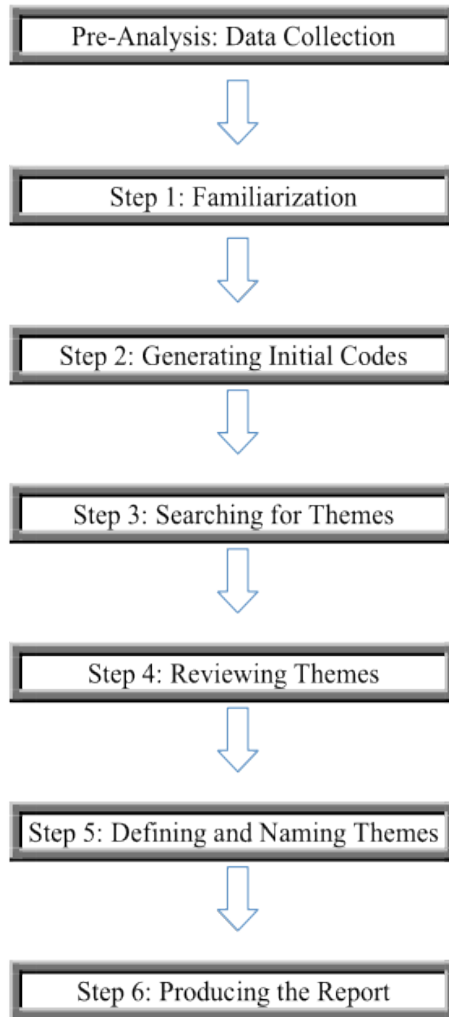
Participants were asked to bring their most recent audiogram to the interview. If they did not have an up-to-date hearing test or they preferred to have a retest, a pure-tone hearing screening was conducted using standard clinical procedures. The description of each participant's hearing loss based on the provided or obtained audiogram can be found in Table 2.1.

Each interview was based upon an interview schedule created by the researchers, as shown in Appendix C. The schedule was created to provide topic-related prompts for the interviewer to use during the session, but was not strictly adhered to if the participant remained focused on her hearing health and her process of thinking about obtaining hearing aids. Participants were also informed that they might be contacted later for a follow-up telephone conversation if any clarification or confirmation regarding the initial interview was needed. Interviews were digitally audio-recorded, transcribed, and then coded by the researchers for later in-depth analysis. Detailed fieldnotes, the template of which is found in Appendix D, were taken throughout the interview and coding process.

2.4 Data Analysis

The data analysis of thematic analysis involves several steps. The steps followed for data analysis of the current study are outlined in Figure 2.1. From the start of an interview, pre-analysis, a researcher may begin to think about potential themes arising from the interview; the process of theme identification does not necessarily begin only once interview transcripts or fieldnotes are reviewed later (Luborsky, 1994).

Figure 2.1: Steps in Data Analysis



Once the interviews are complete and the entire data set is ready for review, step one, familiarization, begins. The main goal during the initial read-through of the data set is simply to gather an awareness of the material before any coding of the data begins (Braun & Clarke, 2006; Luborsky, 1994). While some notes and marking of ideas can be done at this time, the main purpose once again is familiarization with the data set.

Following familiarization, initial codes are generated in the second step. To begin this code generation, a list of ideas about what is in the data and what is interesting about

each idea is compiled (Braun & Clarke, 2006). Essentially, the purpose of this step is to organize the data into meaningful groups.

In the third step, the different codes that have been generated are sorted into potential themes (Braun & Clarke, 2006), a sample of which from this study is available in Appendix E. At this point, focus shifts from individual codes to the broader level of themes. This theme identification can be done in one of two ways: the frequency of a phrase can dictate whether it constitutes a theme, or the importance of the topic to the subject, as judged by the researcher (Luborsky, 1994). More instances of a theme across a data set do not necessarily equate to greater importance of that theme, nor is there a rule regarding what proportion of a data set must contain evidence of the theme in order to be considered a theme (Braun & Clarke, 2006). For a topic or potential theme to be considered important by the researcher, it depends on the relation of the topic to the research question, as well as the interpretation of the data, the nuances of which may not have been explicitly stated by the participant, but were perceived by the researcher. In the present study, a combination of the two methods was used to create the broader level of themes. More specifically, when determining the importance of a topic, the frequency of the topic across all participants was considered, as well as if there was a strong emotional reaction to a topic, or was of greater significance, even if to a smaller number of participants.

Once the list of potential themes is developed, the candidate themes are refined and reviewed. This fourth step is necessary because it is typically found that some candidate themes are not necessarily themes after all, as there is not enough evidence to support them. It is also common that some candidate themes need to be collapsed into one another, or broken down further within a broader theme. The data within individual themes should fit

together meaningfully, and there needs to be a clear distinction between different themes (Braun & Clarke, 2006). When the candidate themes are finalized, the fifth step is to consider the broad, overall story that is being told by the themes about the entire data set, as well as to identify what the essence of each theme is and determine what aspect of the data each theme captures. The fifth step is an appropriate time to consider theme names to be used in the final analysis.

The final step in data analysis is producing the report. The goal is to tell the complex story of the complete data set in a concise, coherent, and logical account.

In order to ensure validity (also referred to as “credibility”) of the study, a method referred to as investigator triangulation (Golafshani, 2003; Johnson, 1997) was used throughout data analysis, in which at least two researchers read through each transcript and identified codes and themes independently before coming together to compare findings and to discuss conclusions.

3 Chapter: Results

3.1 Dynamism

The overarching theme throughout the personal stories of hearing loss was dynamism, because each woman's decision regarding hearing aids was based on a dynamic interplay of many relevant factors. While it could be said that there was a tipping point based on the combination of influencing factors, the decision of whether or not to obtain hearing aids was identified as a continuous cost-benefit analysis, in which all variables, whether facilitative or obstructive in nature, actively interacted with one another.

Judith, 67 years old, provided one example of how, throughout the process of identifying and treating her hearing loss, there were a number of variables that influenced her decision. She began to consider obtaining hearing aids because of concern regarding the safety of both herself and her grandchildren as a result of her hearing loss. However, when Judith discovered the cost of new hearing aids, she realized she could not afford them, and so stopped the process until she could save money to buy them. Once she saved sufficient money, Judith still delayed purchasing hearing aids until she found an audiologist who she felt was trustworthy. Based on this short example, it can be seen that several factors influenced Judith's decision regarding hearing aid uptake, including safety concerns related to her hearing loss, cost of hearing aids, and trust in the audiologist. Judith's was just one of many other examples of the various considerations an individual confronts in her decision of whether or not to get hearing aids.

While the overall message from all interviews was of the dynamic interplay of all possible influencing factors, a number of variables consistently emerged from the data, which were considered by the researchers to be important themes regarding hearing aid uptake in

females in the hearing healthcare journey. The first of the four themes was self-perceived hearing, which refers to how the individual viewed their own hearing and how it affected their day-to-day lives. Three subthemes that emerged to represent how the women described their hearing loss and how they justified the need or lack thereof of hearing aids were conversations with others, use of communication strategies, and the psychosocial impact of their hearing loss. The second of the four themes was information gathering and informed decision making. Three subthemes that emerged related to this second theme were the sources and availability of information, types of information, and expectations. The third theme thought to influence hearing aid uptake for these women was the influence of others. This may have been the influence of family and/or close friends, the influence of the audiologist or hearing healthcare professional, or the influence of others with hearing loss. Finally, the fourth theme that emerged from the data was the cost associated with the uptake of amplification. Two subthemes or issues surrounding cost was cost-benefit analysis and finances acting as a facilitator to hearing aid uptake. These four themes, along with their subthemes, are defined and illustrated in more detail below.

3.2 Self-Perceived Hearing

Beginning from the first question asked by the interviewer, the participants discussed their hearing loss, how it was initially noticed, how it affected them, how it affected others, and how they dealt with it. Interestingly, the objective measure of hearing as reported on the audiogram did not necessarily predict the reported effect of the hearing loss on participants' day-to-day lives, nor was it used by most of the women as justification for needing or not needing hearing aids or assistive technology. For example, Carol, who had a mild to moderately-severe hearing loss above 2000 Hz bilaterally, began to withdraw from social situations, becoming more socially isolated, and reported depression as a result. In contrast

to Carol, Mary, who had slightly worse hearing, with a mild sloping to severe hearing loss above 750 Hz, had decided she did not need hearing aids yet because the hearing loss had not had a significant negative impact on her life. She explained:

I'm pretty good at conversations with people at short range, that's the kind of talking I do all the time...I will get hearing aids, I will, but as long as I can function more or less at this level, I think I'd probably be wiser to wait

Even Judith, who was the only participant to use her hearing test results to justify her decision to obtain hearing aids, did not define her hearing loss based purely on the audiogram and did not use her results as her initial reason to obtain hearing aids, but instead used it as confirmation of the decision already made.

The effect of degree of hearing loss on the decision regarding hearing aid uptake manifested as whether the individual believed the hearing loss warranted hearing aids. Two of the women interviewed, Mary and Sandra, who had decided against getting hearing aids at the time of the interview, stated that before they would get hearing aids, their hearing would have to get much worse. While it was not clear what their definition of "much worse" was, in light of the descriptions of hearing loss provided by the women in this study, the statement was likely based generally on their entire quality of life, and specifically on the following factors that were identified as subthemes: conversations with others, use of communication strategies, and the psychosocial impact of the hearing loss.

3.2.1 Conversations with others

All nine of the women talked about the effect of hearing loss on their ability to converse with others, whether in particular situations or with people who had certain voice qualities or speaking characteristics. As Nancy put it, "If I didn't communicate with people

then I would never wear [hearing aids].” Carol, who decided recently to get hearing aids, but did not yet have them at the time of the interview, commented:

If I’m around my sister-in-law and I can hear what she’s saying, I’ll be happy...I hope that I won’t miss out on plays or talking with friends...I guess I’m tired of not hearing what’s going on.

Of the five women who had decided to get hearing aids, Nancy and Carol both expressed that missing out on conversations played a major role in the decision to get hearing aids. Though not explicitly stated, Barbara also implied that it was a significant factor in her decision, because of her frustration and disappointment at her difficulty in hearing, and the resulting exhaustion of trying to hear, in certain settings.

Although Judith and Sharon did not say that ability to converse with others directly affected their decision to obtain hearing aids, both made statements revealing that conversations with others had a role in their initial recognition of the presence of hearing loss. More specifically, Judith explained, “I don’t know that I noticed a hearing loss as much as other people did. Grandchildren: ‘Grandma, listen to me.’” Sharon also explained, “I noticed when we sat in that little circle that I had trouble hearing people on this side...you go to a restaurant and you have music going on, I did find it very hard.” Therefore, while it is not possible to say that it directly influenced Judith and Sharon’s decision regarding hearing aid uptake, it is possible to say that their ability, or lack thereof, to converse easily with others likely moved them further along the hearing healthcare pathway.

A related factor, increased difficulty hearing the television, was expressed by six of the nine women as an indication that they had some hearing difficulties. While television use is not the same as conversing with others, it nevertheless served for these women as an indicator of their ability to hear and understand what was going on around them, which could

help them continue on the pathway towards hearing aid uptake. For example, Patricia stated, “I guess over time I noticed that it was more noticeable, that I was having more difficulty in some situations. I have a definite problem with television.” Similarly, Sandra explained that although it was the difficulty of hearing conversations in her vanpool to and from work that initially alerted her to her hearing problem, she also stated that, “certainly gradually over the same period the television has to be a little bit louder.”

In general, difficulties having conversations with others or difficulties hearing conversations on the television acted as a facilitator towards hearing aid uptake. The women either explicitly stated this as a factor in their decision to obtain hearing aids, as Nancy and Carol both expressed, or it simply helped them identify the presence of a hearing deficit, as was implied by Judith and Sharon. Even the women who had not yet decided to obtain hearing aids recognized difficulty with conversing with others. The difference, however, as Mary and Sandra indicated, was they reported hearing sufficiently in the situations important to them, therefore, hearing aids were not justified.

3.2.2 Use of communication strategies

Each of the nine women, at some point during their interview, described strategies they had used to either aid their ability to communicate or to decrease the stress of difficult listening situations. The most commonly-used strategy was that of non-verbal communication, such as self-positioning or lip-reading, but some of the other strategies used included: adaptation of work environments, controlling the listening environment, or verbally explaining to others what they could do to aid in communication. Mary, when she talked about recognizing her hearing loss and how that influenced her retirement, exemplified the adaptation of work environments. She said, “I virtually could hear enough to not to be a problem and when it started to be a problem for me I thought, well, I could see the

difference, so then I decided I would like to retire.” Similarly, when Linda talked about how she controlled the listening environment, she explained, “if it’s really too noisy, I just bluntly say, that place is too noisy. That’s all.” As a final example, Patricia discussed her verbal communication strategies when she informed her brothers-in-law of her impairment and what she needed of them.

In some cases, the decision to use a strategy was consciously made; for example, Sharon talked about making a decision to compensate when she said, “I’m much more upfront about it with people. I say, well I have a hearing problem, therefore I want you to, I want to sit [on] this side.” In others, it was the recognition of strategy use or the increase in use that caused the women to suspect the presence of a hearing loss or the need to do something else about their loss. When asked what made her recognize her hearing loss getting worse over time, Barbara stated that she had been asking for more repetition from friends. Nancy also expressed the need to ask for repetition from people as one of the initial indications of her hearing loss. She also noticed that she was changing her head position or posture to better hear.

For these women, communication strategies could act as either a barrier to hearing aid uptake or as a facilitator. When the women felt that strategy use was helping their communication enough, so that hearing aids were not warranted, it acted as a barrier. This was the case for Mary who stated, “if I’m close like I am to you, I can get on pretty well with lip-reading.” The use of communication strategies acted as a facilitator for hearing aid uptake, when it helped the women to recognize the presence or worsening of a hearing impairment, as in the examples above of Barbara and Nancy.

3.2.3 Psychosocial impact of hearing loss

The psychosocial impact of hearing loss was the most commonly-discussed aspect of self-perceived hearing among the nine women in this study. For the most part, the more the women reported hearing loss to affect their psychosocial functioning, the more it was a facilitator for hearing aid uptake. There were three aspects to the psychosocial impact of hearing loss as discussed by the women: the general emotional response to the hearing loss, social isolation or activity limitation, and depression or psychological impact.

At least four of the participants expressed (or exhibited) a great deal of emotion surrounding the recognition of their hearing loss, the most common of which was frustration. For example, Sandra, when she explained what brought her to the point of knowing she needed a hearing test, stated, “Frustration. Frustration because asking people to repeat things or missing parts of the conversation and just hoping you can smile and cover it over.” She also described feeling embarrassment for having to ask for repetition so often. Judith explained one of her emotional responses to hearing loss, as well as reasons for getting hearing aids, this way: “I think fear really got into it... feeling unsafe.”

Seven of the women talked about the impact of hearing loss on specific aspects of their social lives. When discussing how her hearing loss initially impacted her life, Nancy said, “I would often fall asleep if I went to a performance or a play because I couldn’t hear.” Of these seven women, at least four reported that the hearing impairment prevented them from being involved in specific social activities. Linda said:

We used to have season tickets to go to the Vancouver Playhouse and for a few years, not too, too many years, but a few years we had a season ticket. And then I realized that some of the conversation I [was] having difficulty to hear, especially at the end of the sentence. People laugh at certain humour and a joke, I don’t get it. So, then we

stopped going there. I thought maybe it's the hearing situation. Anyways, I stopped my season tickets.

Similarly, Judith explained:

I used to really like to go to places to dance. I don't want to call it clubbing because I'm way past that age, but I used to really enjoy it and then, you know, and then found that I just wasn't doing it.

It was also possible that social isolation could occur as a result of activity limitation.

In this study, two contrasting examples were seen regarding the effect of activity limitation, with one woman reporting little impact on quality of life, and another woman reporting social isolation. Linda noticed that large social gatherings were becoming much more difficult for her as a result of her hearing loss and other associated aging factors. Due to her decreased energy level she was content to stop attending large social gatherings and implied that attendance to these events would not be an incentive for her to choose to get hearing aids. In contrast, Carol had withdrawn from situations because of her hearing loss, which led to unpleasant social isolation. She explained it this way: "I thought, well, if I'm missing out, I'd better get it together and get back into the program, because I know that I've isolated myself and that has led to depression."

The third aspect of the subtheme of psychosocial factors was depression and/or psychological impact. As Carol so appropriately illustrated, it was unlikely that hearing impairment was a direct, simple cause of depression for her. From Carol's point of view, her depression stemmed from her social isolation rather than directly from her hearing impairment.

3.3 Information Gathering and Informed Decision Making

In the process of deciding whether or not to get hearing aids, the interviewed women gathered or sought a lot of information and therefore, information gathering and informed decision making emerged as a second theme related to hearing aid uptake in this sample. The source of information, type of information, and amount of information necessary before a decision was made varied depending on the individual. For some of the women, the ability to make an independent, informed decision was important, while for others, as long as they had a trustworthy hearing professional to help make an appropriate decision, they were satisfied. Sandra exemplified the former with her statement:

I was trying to learn about all the different technologies and what options are available. As I found out there's an awful lot out there and how would I know what fits, first of all, my kind of hearing loss, but also my lifestyle...if I just walked off the street into a hearing aid shop, they could've sold me anything, because I didn't know. I had zero knowledge base.

In contrast, Judith was an example of the latter with her statement, "I really trusted her [audiologist] to come up with the one [referring to hearing aid]."

In the current study, the subthemes that emerged from the data under the broader theme of information gathering and informed decision making were the sources and availability of information, types of information, and expectations. All three of these subthemes had aspects that act as facilitators as well as barriers and all are discussed in more detail below.

3.3.1 Sources and availability of information

A number of sources of information were identified by the interviewed women, such as classes/self-help groups, advertisements, pamphlets, other hearing aid users, audiologists, doctors, and the internet. Linda and Sandra had both attended a class or self-help group

regarding their hearing loss before a decision to obtain hearing aids had been made. Barbara also expressed interest in attending a class, but could not find one available at that time.

While two of the participants reported receiving advertisements or pamphlets about small or discreet hearing aids, and one reported using the internet, the majority of the remaining information was obtained through other hearing aid users or audiologists and/or doctors.

Despite the many potential sources of information, Sharon commented, “I think I would have spent more time researching the business about buying a hearing aid, but it’s very difficult to find information.” One of the complaints from four of the women was the lack of information they had going into the whole process. It was implied by four of the women, and explicitly stated by Sharon, that there was not enough information available, or at least not easily accessible. While all of the participants interviewed in this study had already spoken with a hearing healthcare professional at some point prior to the interview, availability of information was still definitely a concern.

Two suggestions for more sources of information were more public classes, and trial periods offered by the clinics or universities. Sandra stated the importance of unbiased information sources by saying:

What I think would be brilliant is if the School of Audiology could run some kind of course for people like me because you’re trusted to be impartial at a university. It’s not like going to [a private hearing clinic] where they might be pushing this kind of hearing aid...and to actually get hands-on, experience of what is this one going to be like in my ear and how will it improve my hearing?

The second suggestion, or topic, put forward by two of the participants was trial periods. Patricia and Sandra both wanted to find out more about trial periods, or whether clinics even offered them, indicating that they were interested in gathering more information without committing to owning hearing aids. Sandra explained, “I wish there was some way you

could test things out before committing yourself.” She later restated, “As I say, I wish there were some way you could become a little more familiar with how they feel and how you’d actually live with them.”

Of course, conversely, there is the danger of receiving too much information too soon, as Carol experienced:

She gave me the pamphlet and things, but by that time I wasn’t interested anymore. I was getting tired. I was tired and one of the tests I went through I couldn’t figure out very well what I was doing or hearing, you know, and I was trying really hard. I don’t know, because yeah, I was really tired. There was so much information and information that you don’t really want to hear. Yeah it was kind of a long time...and I was tired!

Therefore, while most of the concerns were of the lack of information and how that acted as a barrier to hearing aid uptake, it is important to remember the necessity of providing information in moderation, as well.

3.3.2 Types of information

Before getting too far along in the process of investigating hearing aids, six of the nine women expressed a need for information regarding which clinic to visit. Linda, Carol, Nancy, Sharon, and Judith each discussed how they chose the clinic they went to for their hearing test and/or hearing aid assessment. Along the same lines, Sandra, who had gone to a doctor’s clinic for her initial hearing test and had not yet been for a hearing aid assessment, talked about the concerns she had with respect to choosing the correct clinic:

The funding opportunities, would someone at a [hearing clinic], for example, give that information or not? ... and also, there’s, there might be an impression that they just want to sell a product, they’re not really worried about my continuing health.

Two factors regarding choosing a clinic that were of greater concern than expected were the location of the clinic and whether the clinic was private, non-profit, or a medical center. The

main concern in regards to clinic characteristics seemed to be related to the motivation of the audiologist or other professional, which also overlaps with the theme “Influence of Others.”

For all nine of the women, the financial aspect of owning a hearing aid was a part of the information gathered before any decision was made. If the cost was a concern, as it was for Barbara and Judith, they began gathering information about funding sources and payment plans.

Another type of information gathered was regarding options for hearing aid style, which most of the participants discussed with their hearing healthcare professional. When talking about hearing aid styles, the main concerns were with the size of the aid(s) and comfort.

One more topic of interest for the women was information regarding the available options in hearing aid technology. Sandra, who had not yet decided to get hearing aids, showed some surprise in this regard, as expressed by her statement, “I was trying to learn about all the different technologies and what options are available. As I found out, there’s an awful lot out there.” There was also surprise that given the technology available, more could not be done to make the hearing aid perform better in certain situations. As Nancy explained, “I would’ve thought that given our technological world that hearing aids would be more advanced somehow, that they would be able to block out background noise and block out tinny sounds.”

Depending on the question the women wanted answered and the value of that factor for the individual, aspects of the subtheme “types of information” could act as a barrier or a facilitator. For example, for Judith, finding the correct clinic and audiologist was critical in her decision to obtain hearing aids. Therefore, while for other women, this was not as great

of a factor, for Judith, finding the correct answer to that question was a facilitator for her to get hearing aids. On the other hand, the information Patricia received regarding hearing clinics from her diagnostic audiologist, served to act as a barrier to hearing aid uptake for Patricia. Possibly, given more time and information, Patricia's story may have become similar to Judith's, but at the time of the interview, her limited information regarding hearing clinics was a barrier.

3.3.3 Expectations

Expectations were also discussed as an aspect of information gathering and informed decision making because often the expectations regarding hearing aid use, whether realistic or not, were based on the quality and source of received information. Some of the women's expectations were based on discussions or experiences with other people, while others were based on previous experience with different medical devices, such as eyeglasses. For example, Nancy, in describing her surprise when investigating hearing aid prices, explained:

For years I've worn eye glasses and I had eye surgery in 2005, but before then I used to have very high-index lenses, so I knew that glasses were, you could spend \$900 on a pair of glasses and that's not with sort of fancy fashion frames. So I assumed that ears would be the same kind of money.

These expressed expectations were, for all of the women in this study, a factor in the decision to get a hearing aid or to wait.

The expectations that seemed to have the greatest impact and were most discussed were presented as fears by participants. Generally, these were held by women who had not yet chosen to get hearing aids, and often stemmed from either misinformation or lack of information. Some of the fears mentioned throughout the interviews were of losing the aids (Carol), failure by not wearing the aid (Patricia), making the wrong choice (Sandra),

discomfort (Sandra), inconvenience (Sandra), ear infections (Mary), and electromagnetic fields (Mary).

While the examples given above mainly acted as barriers, there were a number of expectations discussed that served as facilitators for getting hearing aids. For example, expected improvements with a hearing aid included improved quality of life, as well as the ability to hear what had been previously missed. Carol commented, “Well, if I’m around my sister-in-law and I can hear what she’s saying, I’ll be happy.” She also stated, in terms of her overall quality of life, “where there isn’t too much background noise, I think the aids are going to help me and I’ll be, maybe happier.”

3.4 Influence of Others

Generally, there were a number of people who impacted an individual’s decision regarding the uptake of amplification, whether it was a family member pressuring to get hearing aids, a hearing healthcare professional providing information, or an acquaintance who had previous experience with hearing aids. In the current study, the third reported theme related to hearing aid uptake was the influence of others. This theme was divided further into three categories: the influence of family or close friends, the influence of the audiologist or other hearing healthcare professional, and interaction with others who have hearing loss.

3.4.1 Influence of family or close friends

Nancy stated that the turning point for her in the decision to get hearing aids was when she realized that it was obvious to her friend that she had a hearing loss and was missing what was being said. Nancy explained, “I think it was shortly after that, that I decided to get hearing aids.”

For two of the women, family or friends noticed the hearing loss first, or at least were first to recognize the need to do something about it. Encouragement from family members may have served to prompt the decision to get hearing aids for three of the women, including Carol, when her sister-in-law suggested she needed to do something about her hearing loss.

There were also times that encouragement from family was viewed as nagging. In two of the cases, Mary and Judith, the encouragement from family, or at least certain family members, was perceived this way and was essentially ignored or discounted by the women. Mary had been pressured by her daughter for a number of years to do something about her hearing loss. Despite this, she said that she did not need hearing aids at that time. Similarly, Judith said, “My son has been bugging me for years, but he’s just really a sarcastic bug, so I sort of negated anything that he said.” The difference between Mary and Judith was that Judith had decided to get hearing aids, and that some people’s opinions did influence her, such as those of her grandchildren. This difference seemed to imply that the quality or characteristics of the relationship had an impact on the degree of influence.

Barbara, Carol, Sandra, and Judith all reported that a concern for them was not simply that they could not hear friends or family, but that they were becoming bothersome to those people. For example, Carol, when speaking about her new television headset, said, “I finally got my little plug-ins so I’m not disturbing the neighbours four blocks away (laughs). No, it’s not that bad, but you know, just so that it’s not bothering other people.” She also said:

I thought, you know, I have maybe a responsibility for myself as well as the people that are around me not to be you know, for them to constantly have to say, I’m tired of saying it over and over again.

In contrast, in one case, rather than family acting as a facilitator, they actually became a barrier to obtaining hearing aids, due to illness. Patricia put aside her need for a period of

time in order to care for her husband who was suffering from cancer. After he passed away, she began the process of identifying her own health needs and the necessary treatments and steps to take. However, this may have been an issue of personal priorities more than the direct influence of other people. Similarly, other women identified that their primary priority had been moving (Patricia and Sharon), personal illness (Sharon), and general busyness, such as traveling, weddings, and other social events (Linda).

3.4.2 Influence of audiologist or hearing healthcare professional

The second category or subtheme of influence of others was that of the audiologist or medical professional. One aspect of how this relationship influenced the decision regarding hearing aid uptake was the impact of what the patient remembered from the interaction and specifically what they remember being told by the professional. Revealing the influence of the advice given by the audiologist, Patricia talked about her first hearing test:

But, a lot of it, the reluctance I guess, to going in the earlier stages like when I first had my testing done at [the hospital], the audiologist there told me, she said, well, you're kind of borderline, you might benefit from it, but she said if you go to - like they don't sell hearing aids - but, if you go to a place that dispenses hearing aids, she said, they're gonna want to sell you a hearing aid, so bear that in mind, you know. So, I just, I didn't do anything at that point.

Similarly, Linda put great emphasis on the audiologist's words that she should get hearing aids "when motivated". This gave her permission not to rush into purchasing hearing aids, while at the same time increased her appreciation and trust in that audiologist. Carol also commented:

I think when, like yourself, as a professional, you know what's best maybe for the client or the patient, psychologically you do have to wait for people to get ready and get on the bus. So, I think if she was pushing me, I wouldn't be there.

These two examples demonstrated that although what the healthcare professional said may lead an individual with hearing loss to not get hearing aids, there could be benefits as well, such as increased trust in the relationship between client and clinician.

The personal qualities of the audiologist appeared to have had an impact on both the decision to remain working with that particular audiologist and to purchase a hearing aid.

Some of the descriptors of their audiologist used by the women interviewed were:

“understanding,” “diplomatic,” “sincere,” “caring,” and “professional.” Carol explained it well when she said, “For a real good professional it’s somebody that yes, education is very important, but so are a lot of other things. In terms of behavior and values and you know, commitment, compassion, understanding.” Nancy went to multiple audiologists, the first from whom she bought hearing aids and returned them within the trial period. Nancy made the decision not to return to that clinic because she felt that the hearing professional was “patronizing,” and she did not appreciate the clinician’s attitude towards her. It took her between six months and a year to decide to go to a new audiologist at a different clinic and try hearing aids again.

Related to the personal qualities and characteristics of the clinician was the ability of the client to trust the audiologist. While only Judith talked outright about the value of trust in the client/clinician relationship, it was implied by a number of the other women. Sharon, for example, spent a significant amount of time searching for a clinic where the audiologist’s motivation would be what was best for her, rather than profit for the audiologist. In Sandra’s case, she felt that she had to gather all the information herself before visiting an audiologist so that she could make an informed decision on her own, apart from the influence of the audiologist’s bias. At the time of the interview, it seemed as if her inability to trust a

clinician was a factor in her decision to wait on getting hearing aids. In her words: “if I just walked off the street into a hearing aid shop, they could’ve sold me anything because I didn’t know.” In addition, despite the fact that Judith had the funds available and had decided that she needed hearing aids, she held off on purchasing them until she found an audiologist that she trusted. When asked what changed her mind about deciding it was worth spending \$3000 on hearing aids, Judith said simply, “I think it was mainly trust.”

The ability to trust the audiologist or hearing healthcare professional often seemed to be based on the apparent motivation of the clinician. Since it was difficult to determine the motivation of the audiologist before meeting, or even after one meeting, many of the women used the type of clinic as an indicator. This was why deciding which clinic to visit was a factor in information gathering, perhaps more so than was initially expected. Sharon chose to purchase her hearing aids from an “independent clinic” so that she avoided the more “corporate” world of hearing aid sales. Sharon, Patricia, and Judith each chose a non-profit clinic because the descriptor ‘non-profit’ increased their faith that the audiologist would help make the best choice for them personally, rather than being driven by making a sale.

3.4.3 Influence of others with hearing loss

The third category of influence of others was interaction with others who had hearing loss. The influence of others with hearing loss came in a range of situations and also had a variety of effects, both facilitative and obstructive, for the participants. The interactions with others included classes or self-help groups, family members with hearing loss, or friends and acquaintances with hearing loss. For two of the women, Linda and Carol, these interactions helped them to realize they were not alone in the process of hearing loss and obtaining hearing aids, potentially acting as a facilitator for hearing aid uptake for both of them. For Carol, because many of her friends were already experiencing hearing loss, she was better

able to know what to expect and was not surprised when she began noticing the effects. In Linda's case, it seemed like it was a much more emotional experience, as it helped her realize that this was a normal part of aging and that other people in her situation were experiencing similar issues. It was reassuring for her and likely helped her to accept her hearing loss.

Three of the women reported being able to recognize similarities between themselves and others who had a known hearing loss. For example, because Nancy, Sandra, and Carol saw similarities between strategies they used and strategies used by another person with a known hearing loss, they were able to begin the identification of their hearing loss and consider seeking help. Judith and Carol each saw some similarities in behaviours and realized that they did not want to be viewed as the other person was, so decided to do something about their loss before it got to the same point. For example, as Carol explained:

I have another friend that I play golf with and she doesn't wear her aids and I realize now how tiring it is for someone. I would tell her something and then she was constantly saying, "What did you say? What did you say? What did you say?" And it's just really tiring. I thought, you know, I have maybe a responsibility for myself as well as the people that are around me.

Judith also had a close relationship with a successful hearing aid user, her granddaughter, which served as an encouragement for her to try hearing aids. The granddaughter's positive experience with her aids helped set Judith more at ease about trying them. Also, there was extra incentive to be positive about her hearing aids for her granddaughter's sake and to share something special with her. Although this was an interesting result of having a granddaughter or close family member with hearing loss, Judith was the only woman who reported this experience.

Three of the women reported experiences with unsuccessful hearing aid users. The interaction with unsuccessful users went either way, in terms of serving as a barrier or a

facilitator for obtaining hearing aids, depending on the individual. For example, Carol had friends who had hearing aids, but did not consistently wear them, causing her to wonder why, and if there was something wrong with the aids. Judith had an interaction with a lady who did not wear her aids, making it difficult for anyone who tried to have a conversation with her. This had the opposite effect of Carol's experience, and caused Judith to become more intent on trying her best to make the hearing aids work for her.

3.5 Associated Cost

The fourth and final theme found to be an influencing factor in the older adult women's decisions to obtain hearing aids was the cost. Cost did not at first seem to constitute a theme of the same importance as the previous three reported themes, because it did not seem to have the same complexity, nor the same impact on the decisions made by the women. Despite this, associated cost was discussed in all nine interviews and five of the participants did talk about cost as a factor in their decision regarding hearing aid uptake. In addition, although four of the nine participants reported that the cost did not stop them from getting hearing aids, two of these women, Mary and Sandra, both stated that though cost was not a barrier for them, they imagined it would be for others. Therefore, based on the data, the fourth theme found to influence hearing aid uptake in this population was associated cost. Within this theme, two topics that emerged were cost-benefit analysis and finances as a facilitator.

3.5.1 Cost-benefit analysis

In discussion surrounding cost, it appeared that each woman was going through a constant cost-benefit analysis. Although none of the nine participants stated outright that they conducted analyses, it was inferred from comments and concerns in the interviews that

the values of the pros and cons of obtaining hearing aids were constantly changing relative to changing life situations.

Barbara and Judith provided straightforward examples of situational factors affecting the values within their cost-benefit analysis, when they stated that cost was a barrier for them, but were able to receive funding, which alleviated the financial concern. For five of the other women, it was apparent that they had done a cost-benefit analysis before any decision was made. For example, Carol stated, “They’re really expensive and so I have to make up my mind that I’m going to use them properly.” Patricia also exemplified her cost-benefit analysis when she wondered, “If they’re that problematic, do I want to spend that money and not get proper outcome?” Carol’s perspective was from already having made the decision to purchase hearing aids, while Patricia had not. Patricia and Sandra, neither of whom had decided to get hearing aids, reported that cost was a significant barrier for them. For both of them, it seemed that the issue was whether the hearing aid was worth the cost rather than not having available funds.

Another consideration in the cost-benefit analysis for two of the women was the concern that they would have to spend more money again in a few years, as hearing aids have a limited lifespan. Mary wanted to put off purchasing hearing aids for as long as possible to delay the pattern of purchasing hearing aids every four or five years. When Sandra talked about her surprise at the cost associated with hearing aids, she explained, “when you’re not expecting it and when you realize you’re going to have to upgrade or change at some point in the future, it’s not as if it’s forever, you know? So yeah, big barrier.” Therefore, the need to spend the money and replace the aids in a few years was a significant barrier for both Mary and Sandra.

Judith provided an example of how, while cost was a factor, it was generally not the only determinant. She stated that initially it was the cost of the aids that restricted her ability to obtain them. “[The audiologist] said, ‘oh yes, you need hearing aids. And this is how much they are going to cost, forty-three hundred dollars.’ And I said, sorry, can’t do it. I guess I’ll just have to be deaf.” Judith then stated that she was eventually able to put aside a certain amount of money to cover the cost of two basic aids. Yet, even with the money available, she still would not have purchased hearing aids until she found an audiologist that she trusted. Therefore, although cost was a barrier for her, there were still other factors that played a more significant role in her decision to obtain hearing aids.

3.5.2 Finances as a facilitator

Sharon provided a striking example of finances as a facilitator to obtaining hearing aids. While it could be assumed this was not the usual case, it was worth highlighting because for this woman, finances were greatly influential in her decision. For Sharon, the financial aspect caused her to get hearing aids earlier than she otherwise would have, as she explained:

I was on LTD [long term disability] from work and I worked for the government and they have good benefits and because I was a manager I had flexible benefits, so I had excellent coverage for hearing aids. I went on LTD and I didn’t know how much longer my excellent coverage for hearing aids was going to continue, so in the same way that my husband and I went and got eyeglasses, I thought, well, if I’m going to need hearing aids, I need to get them now while I can get insurance for them...as it happened, when I got this hearing aid, pretty much I got most of it reimbursed...so, it was a financial decision. That’s what made me do it. It’s pure and simple, money pure and simple.

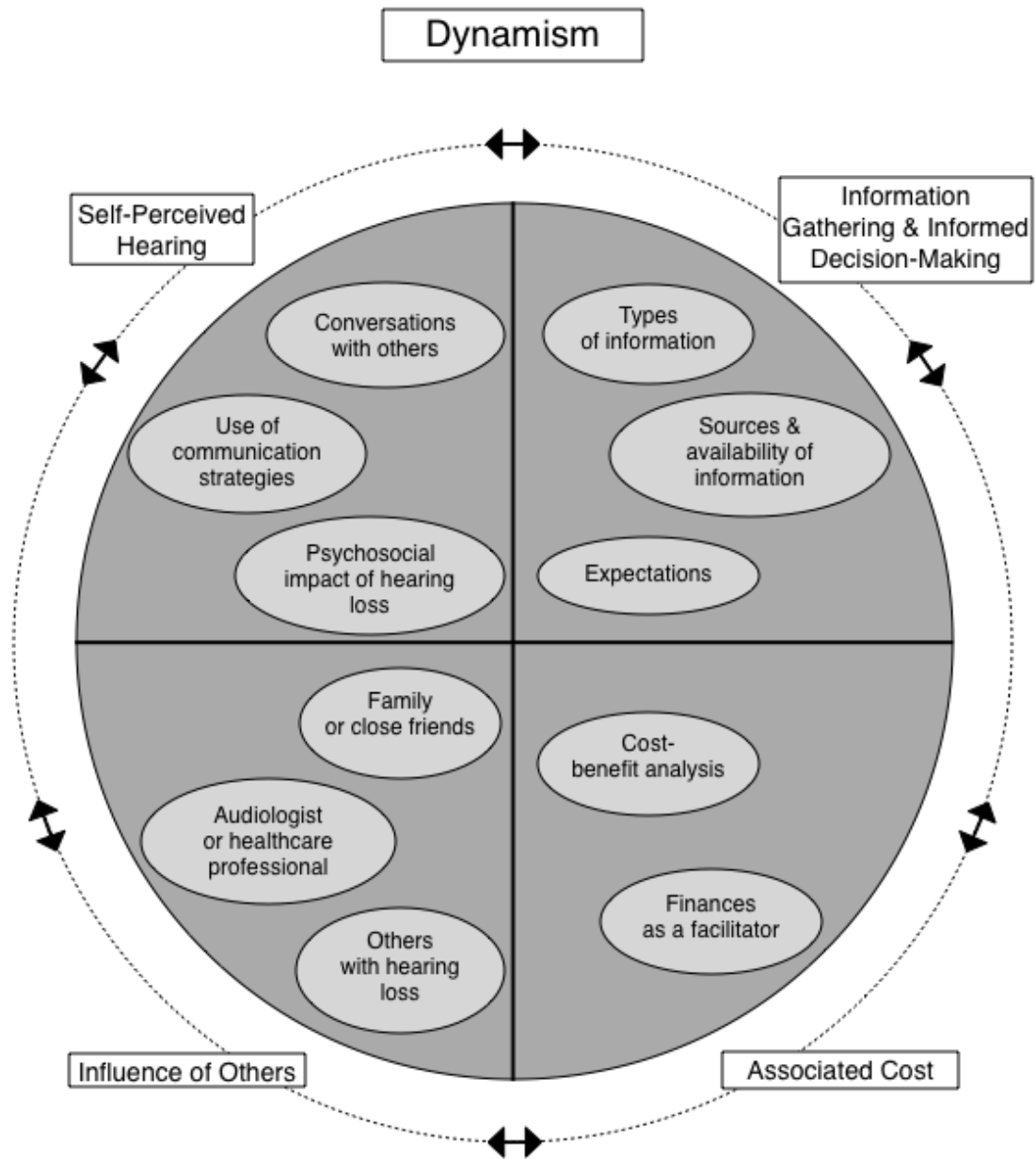
The majority of Sharon’s hearing aid costs were covered by her extended health benefits from work and because she was soon retiring and her benefits would decrease, she purchased

hearing aids. She made this decision despite many other events going on in her life at that time, such as cancer, an upcoming move, and a wedding in the family. In consideration of the overall theme of dynamism, it could be said that in Sharon's case, there was greater value given to the benefit of financial coverage than to the other life events in terms of her decision to obtain amplification.

3.6 Summary

While four themes thought to influence hearing aid uptake in this population were identified, it was clear that each of these themes did not work in isolation to impact the decision regarding hearing aid uptake. Rather, the factors interacted and played one upon the other to affect the final decision made by the individual with the hearing impairment. The values given to each factor were different for every individual, and were constantly changing within the individual depending on the situation and circumstance. A representation of the themes and subthemes can be seen in Figure 3.1.

Figure 3.1: Dynamic Interplay of Themes and Subthemes



A final example from the data, illustrating dynamism, was from 62-year-old Sandra who sought help for her hearing impairment when her hearing loss began to cause difficulties in her day-to-day life, such as having conversations with others, or hearing the television. She experienced great frustration, as did her husband, with her hearing loss. All of the above eventually lead her to gather information from a local hard of hearing association which then encouraged her to visit a hearing healthcare professional, a medical doctor. Although she reported that the doctor told her she would benefit from hearing aids sooner rather than later, her response to this was, “and of course, I ignored him” showing that the value Sandra placed on what she was told by the professional was not great, especially as compared with some of the other women. While there were a number of factors that clearly brought Sandra closer to deciding to get hearing aids, there were also a number of factors that acted as barriers for her, including cost, feeling that her hearing was not poor enough, fear of discomfort, using hearing aids with glasses, and inconvenience, as well as concern with choosing the wrong hearing aid. In addition, the circumstance in which Sandra first noticed her hearing loss held more value for her when initially noticed than it did later, at the time of the interview. She stated:

It was when I was commuting to [work] in a vanpool. We were seven or eight people in the van and conversations all around me and I really found unless somebody turned around and looked at me and faced me, I wasn't hearing what they were saying and so, I couldn't join in, which made me feel a little anti-social.

Later in the interview, when asked what point she was currently at in her hearing healthcare journey, she explained, “Let's just hold off for as long as possible because I am still coping, I am still managing and I'm not in the vanpool anymore. I don't have to worry about that.” Therefore, not only were there a number of factors that influenced Sandra's decision to wait

on getting hearing aids, but there had also been a shift in the factors influencing her decision over time.

4 Chapter: Discussion

By hearing and analyzing the personal stories of hearing loss and the hearing health journey of nine women, it was possible to identify the facilitators and barriers to hearing aid uptake for these women. Upon comparison between the themes with those reported in the literature there is limited overlap, but much less than anticipated. In general, the concept of multiple variables involved in the decision of hearing aid uptake is not a new one. Knudsen et al. (2010) systematically reviewed the literature and found as many as 31 factors related to the entire amplification process, while Jenstad and Moon (2011) found up to seven themes of factors related to hearing aid uptake specifically. What is new is the identification of the constant interplay of multiple factors. The weight or value given to each was not static, nor was the degree to which each factor was related to one another.

Briefly, when comparing the four themes found in this thesis (self-perceived hearing, information gathering and informed decision making, influence of others, and associated cost), with the seven themes reported across the literature by Jenstad and Moon (2011), it was found that the only directly comparable theme between the two is cost. The theme of self-perceived hearing is similar to the theme reported by Jenstad and Moon (2011) of the effect of hearing loss on quality of life and perhaps to a lesser degree also related to the theme of degree of loss. There is no correspondence between the remaining two themes, information gathering and informed decision making and influence of others and those reported by Jenstad and Moon (2011).

4.1 Self-perceived Hearing

The finding of a disconnect between objectively measured hearing loss and self-perceived hearing loss in some of the women in this study was not surprising, considering the

literature regarding the relationship between self-reported hearing handicap, objective hearing loss measures, and hearing aid use (Chang et al., 2009; Humes et al., 2003; Knudsen, 2010; Palmer et al., 2009). The relationship between these variables is not direct and often, self-reported hearing handicap is a better indication of hearing aid uptake than is objective hearing measures (Chang et al., 2009; Palmer et al., 2009).

This study was also not the first to show that the use of communication strategies may influence hearing aid uptake. It has been shown that the use of maladaptive behaviours in dealing with hearing loss increases the likelihood of rejecting amplification (Helvik et al., 2008), confirming that the use of communication strategies does in fact influence hearing aid uptake. In addition, based on a review of the literature, Erber (2003) concluded that even when hearing loss is recognized, due to the potential success of communication strategies when used appropriately to maintain quality of life, individuals put off getting hearing aids until the strategies are no longer as effective.

Not only has the use of strategies been previously shown to influence hearing aid uptake, but all of the strategies discussed in this study fall into one of the ten categories put forward by Hallberg and Carlsson (1991), in their examination of strategy use for management of hearing impairment. The ten categories, all of which were represented by the women in this study, were structuring demanding auditory situations, controlling the environment, maintaining social interactions, verbal communication strategies, non-verbal communication strategies, avoiding confrontation, minimizing the disability, using technical aids, adaptation of work, and recovering (Hallberg & Carlsson, 1991).

The psychosocial impact of hearing loss is well represented in the literature, (e.g. Anand & Court, 1989; Hetu et al., 1993; Mulrow et al., 1990; Pallarito, 2010), as well as the

most commonly discussed aspect of self-perceived hearing among the nine women in this study. Meaningful participation was also found to be the over-riding theme for hearing aid use and non-use (Lockey et al., 2010). Lockey et al (2010) created a model of hearing aid use consisting of three themes: meaningful participation without the use of hearing aids, barriers to participation, and meaningful participation through hearing aid use. They suggested that hearing aid use was based more on the role that hearing played in social participation and how much amplification was able to alter that participation rather than the characteristics of hearing aids (Lockey et al., 2010). Although Lockey et al. (2010) specifically examined hearing aid use and non-use, the results of the current study confirm that activity restriction not only has a great influence on hearing aid use, but is a dynamic part of the interaction influencing hearing aid uptake as well.

One participant, Carol, explicitly stated a relationship between her hearing loss and the presence of depression or depressive symptoms. Previous literature has shown that is that there is a relationship between psychological effects, such as depression, and hearing loss (Cacciatore et al., 1999, Gopinath et al., 2009; Nachtegaal et al., 2009) and for Carol this relationship definitely was a factor within the dynamic interplay, influencing her decision.

4.2 Information Gathering and Informed Decision Making

Although there has been some discussion in the literature regarding pre-fitting expectations and hearing aid satisfaction (Knudsen et al., 2010; Wong, Hickson, & McPherson, 2003), there is a lack of research on the relationship between the process of information gathering and hearing aid uptake. Looking at expectations and hearing aid use, a study that compared hearing aid users and non-users found no significant difference in terms of hearing aid expectations between the two groups (Humes et al., 2003). Yet in the current study, expectations related to hearing aid use did seem to influence the decision of hearing

aid uptake. This suggests that there is a difference in this regard between the stages of hearing aid *uptake* and *satisfaction*. In confirmation, a study conducted by Meister et al. (2008), examined the relationship between willingness to get hearing aids and different aspects of pre-fitting expectations. They demonstrated the impact of expectations of improved quality of life on the willingness to get hearing aids and interestingly, also reported that the majority of their subjects expected hearing aid use to result in improved quality of life (Meister, Lausberg, von Wedel, & Walger, 2004; Meister et al., 2008). In their model created to represent willingness to use hearing aids, expectation of improvement in quality of life accounted for approximately 42% of the variability (Meister et al., 2008).

Despite the lack of data in the literature related to this theme, information gathering or informed decision making was a significant factor for five of the nine participants, and at least mentioned by two of the remaining women. In addition, a study looking at internet use for information gathering in the healthcare field in general found that almost half of the participants reported making health-related behavioural changes as a result of using the internet for finding health information (Iverson, Howard, & Penney, 2008). While that study was examining only online information gathering, it nevertheless suggests the importance of considering the overall impact of information gathering within the hearing health field. Kochkin (2007) addressed this by reporting that unavailability of information was a significant barrier to hearing aid uptake for almost 50% of his survey respondents with hearing loss but no hearing aids. More specifically, they indicated insufficient knowledge regarding their hearing loss, where to get tested, or where to purchase hearing aids (Kochkin, 2007).

4.3 Influence of Others

While the women in this study talked at great length about the impact of other people on their decision to seek help for their hearing loss, Knudsen et al. (2010) reported a lack of data in the literature regarding pre-fitting sources of motivation and hearing aid uptake. Kochkin (1993) briefly addressed the influence of the hearing healthcare professional on the hearing aid candidate. Also, there has been some research that has examined the impact of hearing loss on other, closely-associated individuals (Corna et al., 2009; Hetu et al., 1993; Jerger et al., 1993), but none that examined the reverse of that relationship to determine how others influence the individual with hearing impairment and specifically in terms of hearing aid uptake.

It was proposed by Jerger et al. (1993) that individuals with hearing loss do not always recognize the impact their impairment has on others with whom they have regular contact. According to Jerger et al. (1993) this explains why the partners of those with hearing loss often encourage hearing aid use before the individual with hearing loss even recognize the impairment. Further, Corna et al. (2009) reported that those who were not currently married were less likely to report untreated hearing loss versus no hearing loss. The explanation for this finding was that perhaps without a spouse or partner to call attention to their hearing difficulties, there would be a tendency to deny the existence of the problem, which would cause a higher number of reported “no impairments” for the single respondents (Corna et al., 2009). It was also reported by Hetu et al. (1993) that hearing loss had a significant impact on intimate relationships, especially between impaired and unimpaired partners. They suggested that the professional’s intervention should be reevaluated to take into account the partner as well as the individual with hearing impairment, considering that hearing impairment had considerable impact on both individuals (Hetu et al., 1993). While

the women in this study were more likely to report influence from a child or other family member, rather than a spouse, both the results from this study as well as previous research show the importance of family involvement in the process.

Unfortunately, rather than the influence of the audiologist or hearing healthcare professional being predominantly facilitative, survey results have shown that advice from a hearing healthcare professional was the fourth most common reason for not purchasing a hearing aid, and that audiologists and physicians gave their patients up to three times as many negative recommendations as positive ones regarding hearing aid use (Kochkin, 1993). While these statistics showed the ability of the professional to act as a barrier, the current study found evidence of the healthcare professional's advice acting as both a facilitator and barrier to hearing aid uptake.

4.4 Associated Cost

There has been much research related to the influence of cost on hearing aid uptake (e.g., Franks & Beckmann, 1985; Garstecki & Erler, 1998; Jenstad & Moon, 2011; Kochkin, 2007; Meister et al., 2008). Kochkin (2007) distinguished between two groups who stated that cost was an influencing factor for them, and this distinction was supported and represented in the current study. The first of the two groups included those who could not afford hearing aids and the second, those who did not feel hearing aids were worth the expense (Kochkin, 2007). Perhaps the second group came to this conclusion based on a cost-benefit analysis they conducted, whether implicitly or explicitly.

While it was found in the current study that the cost associated with hearing aids was an influencing factor in the decision to obtain hearing aids, the fact that there was some uncertainty as to whether it constituted a theme provides more support for the previous inconsistent findings regarding cost as a major contributing factor to hearing aid uptake.

Also, the striking example in the current data of finances acting as a facilitator rather than a barrier, contrary to how finances are commonly viewed (Franks & Beckmann; Garstecki & Erler, 1998; Kochkin, 2007), adds to the inconsistency of how finances might influence hearing aid uptake.

4.5 Others

Throughout the interviews, a number of potential themes emerged from the data that were not as significant as expected based on previous literature. Two of these less prevalent themes worth noting were the aging process, and appearance and stigma.

The first of these potential themes was the aging process and how hearing loss interacted with other aspects of aging. The aging process came up four times throughout the nine interviews, first by Linda, who reported that because hearing loss was a normal part of the aging process, she was able to accept it. Carol and Nancy both reported that the aging process was already too difficult and it was hard to accept hearing loss on top of everything else. However, although this was a factor for some of the women, it was not the large theme throughout all interviews that was initially anticipated.

Another theme that was expected to have been more significant given the literature (Erler & Garstecki, 2002; Franks & Beckmann, 1985; Garstecki & Erler, 1998; Kochkin, 2007; Meister et al., 2008; Wallhagen, 2010) was that of appearance or stigma of hearing loss or wearing a hearing aid. Although this topic has been explored fairly extensively, there was not great consistency across the literature of the predictability of stigma as a barrier (Jenstad & Moon, 2011). Similarly, while it was mentioned by many of the women, the majority of them reported that the appearance of wearing hearing aids was not a concern for them. For example, Judith explained:

Even if my hair didn't cover [the hearing aid] I don't think that I would care. I might've ten years ago, but at this point I was just so grateful to be able to even have the hope that I'm going to be able to hear.

A few of the women reported wanting small or discreet hearing aids, but generally, when talking specifically about the appearance of hearing aids, either said that other people would not notice them or that they did not care if people did notice them. Patricia admitted to struggling with the appearance of the hearing aid, but that she knew that what others thought was not important and those who really cared about her and whose opinion mattered to her would not care about her wearing hearing aids. She summarized it this way: "so I guess at the end of the day what this is suggesting is that, I might be over concerned about somebody noticing when in fact they probably wouldn't and if they did, what does it matter?"

5 Chapter: Conclusion

5.1 Summary

It is known that age-related hearing loss is prevalent among older adults in North America (Public Health Agency of Canada, 2006) and that if left untreated, the effects of hearing loss can be detrimental (Mulrow et al., 1990). Despite this, the percentage of those who have and use assistive technology is relatively small (Cohen-Mansfield & Taylor, 2004a; Kochkin, 1992). While previous literature quantified the factors influencing hearing aid use among older adults, such as the effect of hearing loss on quality of life, stigma, degree of hearing loss, personality characteristics, cost, age, and gender (Jenstad & Moon, 2011), the purpose of the current study was to further explore these and other factors related to hearing aid uptake, through the use of qualitative interviews.

It is concluded that there is a dynamic interplay of a number of factors for each individual and for each decision regarding hearing aid uptake, leading to the over-arching theme of dynamism. While other research identified many factors affecting hearing aid uptake and use (Jenstad & Moon, 2011; Knudsen et al., 2010), typically each factor was examined in isolation. The current study illustrates how these factors interact for an individual to affect the decision of hearing aid uptake. Within dynamism, there were specific themes that emerged from the data with respect to hearing healthcare decisions. These themes were self-perceived hearing, information gathering and informed decision making, influence of others, and associated cost.

The results regarding self-perceived hearing confirmed previous findings (Chang et al., 2009; Palmer et al., 2009) that objectively-measured hearing was not predictive of the

hearing handicap reported by the individual, nor was it strongly predictive of hearing aid uptake.

In terms of information gathering and informed decision making, the importance of availability of information, and more specifically, unbiased information, was stressed by the women, as well as evident by their discussion regarding expectations of hearing aids and their use. As there was not a lot of literature available within the hearing field examining the relationship between information gathering and hearing aid uptake, the results of this study suggest further exploration would be beneficial.

The third theme, the influence of others, consisted of three subthemes: the influence of family and close friends, the influence of the audiologist or hearing healthcare professional, and the influence of other hearing aid users. While there is a general lack of data in the literature regarding pre-fitting sources of motivation and hearing aid uptake (Knudsen, 2010), the influence of others, whether family, professionals, or other hearing aid users, played a role in the dynamic interaction of relevant variables or factors to affect hearing aid uptake for the women of this study.

The final theme, associated costs, shows that while cost was a consideration for hearing aid uptake, it was not a consistent and decisive factor. It can be concluded that in terms of cost, the individual with hearing loss does a constant cost-benefit analysis, in which the values of the costs and benefits were constantly changing depending on fluctuating life situations and knowledge regarding hearing aids.

5.2 Strengths and Limitations

One of the strengths of this study was the presence of a minimum of two researchers for independent analysis of the data to ensure validity. A limitation of this study was the inability to generalize findings beyond this population; for example we do not know if these

same responses would apply to men, or to women at a different point in the life course. Therefore, further research should be conducted to determine the factors that influence hearing aid uptake in other populations.

5.3 Next Steps in Research

Based on the results of this study there have been a number of areas identified for future research. First, it would be beneficial to conduct qualitative interviews with males of the same age since it has previously been shown that the factors that influence hearing aid uptake in males differ from that of females (Garstecki & Erler, 1998; Jenstad & Moon, 2011). Second, it would be important to examine the influence of age by conducting a similar study with older age groups. Finally, the findings reported here regarding factors that influence the women's decision suggest that more research should be conducted to determine how information gathering, as well as the influence of others or their motivation source, affect hearing aid uptake.

5.4 Clinical Implications

The clinical implications of this study can be divided into two categories, those for the profession in general and those for the clinician specifically.

5.4.1 Implications for the profession

1. Based on reports from the women of a general lack of information as well as concern with where to find information from unbiased sources or without being pressured, the profession of audiology in general should provide more unbiased sources of information.
2. Educate the public regarding treatment options other than hearing aids for those who recognize the need to do something about their hearing loss but are not yet ready to obtain hearing aids.

3. Stigma of wearing hearing aids was not a concern for the women in this study as much as the effectiveness of the aids for meeting their hearing needs. Therefore, a third recommendation for the profession of audiology would be to shift the focus from appearance and stigma of hearing aids to the benefits of amplification as well as what amplification can and cannot do for an individual with hearing loss.

5.4.2 Implications for the practitioner

Based on the results of this study, there were a number of clinical implications for the practitioner or clinician specifically:

1. Remember that hearing difficulty may not be the only issue experienced by the client. Therefore, the clinician should take time to find out the individual's story and other non-hearing concerns that might impact the client's current motivation or priority for obtaining amplification.
2. Clinicians should not rely solely on the audiogram when considering candidacy for amplification but should also consider the psychosocial impact of the individual's hearing loss.
3. The clinician should determine whether there are any questions the client needs answered or assumptions that need to be addressed. One way to do this is to ask what previous experience the client has had with individuals with hearing loss and/or hearing aids and how that has influenced their expectations, possibly using formal assessment tools that have been developed for this purpose.
4. The clinician needs to be aware that their choice of words may have a powerful impact on the client's decision. More specifically, the clinician should state clearly if it is likely that the client would benefit from amplification. While the clinician needs

- to make a clear recommendation, he or she also needs to ensure that the client does not feel forced into a decision.
5. The practitioner should identify if cost is an issue for the client, and if so, whether it is financial constraint or it is the perceived worth of amplification that is the deterrent. The clinician should then have resources and recommendations for working through either of these legitimate concerns, including assisting the client identify and apply for any funding for which the client might be eligible.
 6. Finally, the audiologist needs to make it clear that they want to do what is best for the client. This could mean being open to other treatment options for the client's hearing loss.
 7. Offer aural rehabilitation classes and group sessions at the clinic, not only for providing information but for allowing opportunities for your clients to connect with each other.
 8. Encourage clients to attend self-help groups.

5.5 Epilogue

Through the experience of this research, there has been a shift in my bias as the researcher in my view of treatment choice as well as the value of objective listening without clinical interpretation. Although I am still likely to view hearing aid uptake from the position of a clinical audiologist, the tendency to view the use of hearing aids as the “correct” choice has decreased significantly throughout the course of this study. I found that there were a number of other appropriate strategies that the women used successfully, including television listening devices and communication strategies.

Taking on the role of objective listener, showed the value, for me, of hearing a person's hearing health story in its entirety before any clinical recommendations or actions are taken. Through the course of the study I began to value the importance of the ability to listen objectively to the women's stories not only for the sake of research, but also based on the current findings of the clinical importance of the relationship between the client and clinician.

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Appendices

Appendix A : Recruitment Poster




THE UNIVERSITY OF BRITISH COLUMBIA
**Female Volunteers with Hearing Loss
Needed!**

Investigator: Lorraine Jenstad, Ph.D.
Assistant Professor School of Audiology and
Speech Sciences

Co-investigator: Danielle Winsor, Master of
Science Student

Project Title: Barriers and Facilitators to
Hearing Aid Use: A Qualitative Report



This project is for a Master of Science thesis

Wanted: Female adults between the ages of 60 and 75 years of age with newly-diagnosed hearing loss. Looking for people who have been recently fitted with hearing aids as well as those who do not yet have hearing aids. Participants will be asked to participate in interview lasting about an hour to hour-and-a-half and possibly a follow-up phone call. The aim of this project is to understand what prevents as well as facilitates getting hearing aids. The information will ultimately be used to try to make hearing aids more accessible to people with hearing loss.

The study will take place at UBC Campus or a comfortable location of your choice, and will take one session of up to 1½ hours and possibly a follow-up phone call of about 30 minutes. We will ask some general questions about your background and general hearing health and then proceed to questions regarding the process of getting and your perception of hearing aids. The entire interview will be audio recorded.

Participants will receive an honorarium of **\$15.**

If you are a female between the ages of 60 and 75 and are interested in participating, please contact:

Appendix B : Consent Form



Barriers and Facilitators to Hearing Aid Use in Older Adults: A Qualitative Report

This project is for a Master of Science thesis.

We are asking you to be in a research study because you have indicated that you are interested in participating. The purpose of this consent form is to give you the information you will need to help you decide whether or not to be in the study. Please read the form carefully. You may ask questions about the purpose of the research, what we would ask you to do, the possible risks and benefits, your rights as a volunteer and anything else about the research or this form that is not clear. When all your questions have been answered, you can decide if you want to be in the study or not. This process is called "informed consent".

PURPOSE AND BENEFITS

This is a research study examining the barriers and facilitators to hearing aid use. You will not benefit directly from taking part in this study. The information received in this study will help us to identify what prevents as well as encourages people to get hearing aids. The information will ultimately be used to try to make hearing aids more accessible for people with hearing loss.

PROCEDURES

If you choose to be in this study, we would like meet you for approximately an hour and a half interview and possibly a follow-up phone call of about 30 minutes if needed to clarify any of your answers from the interview. We would not ask any new questions during the phone call. With your permission, we will request a copy of your current audiogram from your hearing clinic before the interview. During the interview you will be asked general questions about your background as well as questions about your decision regarding getting hearing aids. The entire interview will be audio recorded.

RISKS, STRESS, OR DISCOMFORT

There are no physical risks for these study procedures. We have addressed concerns about your privacy in the following section of this consent form.

OTHER INFORMATION

Being in this study is voluntary, and you may decline to enter, or withdraw from the study at any time without any consequences to treatment or medical care.

Information about you is confidential. We will code all study records, including audiograms and recorded materials. The link between the code and your name will be kept at a secured location, separate from the study information. Only lab employees, all of whom have been trained in privacy and confidentiality, will have access to the link. All interview recordings will be saved on a password protected computer in a locked laboratory. We will keep the link between the study records and your name as well as a copy of the recorded interview for five years from the date of participation in the study, and then we will destroy the link and delete all recordings using methods appropriate for destroying electronic data. If we publish the results of this study, we will not use your name. If you begin the study, you will be compensated by the amount of \$15.

We may want to recontact you about taking part in future related studies. Please indicate below whether or not you give your permission to re-contact you. Giving the research team permission to re-contact you does not obligate you in any way.

Subject's statement

The study described above has been explained to me, and I voluntarily consent to participate, as indicated by my signature below. I have had an opportunity to ask questions. I understand that future questions I may have about the research will be answered by the investigator listed above. If I have questions about my treatment or rights as a subject, I may call the Research Subject Information Line in the UBC Office of Research Services at the University of British Columbia, at 604-822-8598.

I acknowledge that I received a copy of this consent form.

Please check one box below:

"I give the researcher permission to get my hearing test results from the clinic."

_____ Yes _____ No

"I give my permission for the researchers to re-contact me for future related research."

_____ Yes _____ No

Signature of subject Printed name Date

Appendix C : Interview Schedule

Thank you for agreeing to take part in this study. The interview will take up to an hour and one half to complete. If there is a question you don't want to answer, please just say so and I will skip over it.

Begin Audio Recording (state subject id number and the date into recorder):

I want to confirm some of the information that we asked you on the phone:

1. When was your last hearing test?
2. Do you own hearing aids? [If no, go to question 5].
3. For how long have you had hearing aids?
4. Do you wear 1 or 2?

Demographic Characteristics of Client

I'd like to begin by asking you a few questions about your background:

5. In what year were you born?
6. Where were you born? [If born in Canada, go to #8]
7. When did you come to Canada?
8. What is your cultural and/or ethnic background?
9. What is your current marital status?
10. How long have you lived in this city/town?
11. Where do you work/did you work previously?

Main Interview Questions

12. What was your experience leading up to seeing the audiologist? When/how did you notice your hearing loss? What was going on for you during that time?
13. What was your experience at the audiology clinic? How did you react when the audiologist mentioned hearing aids?
14. What is/was your reason(s) for not getting hearing aids immediately?
15. If you have hearing aids, what led you to decide to get them? What changed? Was there something specific which influenced your decision? Can you talk about your experience from when you were diagnosed with hearing loss to when you decided to get hearing aids?
16. Are you eligible for any funding program such as WCB, DVA, or covered by any other extended health benefits program for new hearing aids?

Conclusion

This concludes the questions I have for you. Do you have any questions for me or is there anything that I have not asked that you think we should know regarding your feeling about hearing aids and your hearing health?

Will you be available and willing to accept telephone calls from me for clarification regarding anything discussed today?

Appendix D : Field Log Template

P. 1 of Field Log entry:

Date: _____

Time: _____

Observer

name: _____

Location: _____

Individuals being interviewed (do **not** use names):

Subject Study ID:

Obtained Hearing aids?

YES

NO

Wearing Hearing aids?

YES

NO

P.2 - Text pages of the field log

These are just ideas to get started.

Make sure to consider including:

Paraphrased from (Morse & Field, 1995)

- Description of environment (including clothes, technology, personal belongings, sensory details)
- Contextualizing: (the immediate environment but also the history necessary for someone else to understand the interactions you observe.)
- Consider drawing maps, flow charts, sketches
- Nonverbal behaviour (tone of voice, posture, facial expressions, eye movements, emphasis in speech, body language, gesturing)
- Language used: (key words, focus, topics of primary interest to participants, topics of interest to the study questions, exact phrases, jargon or vernacular specifics (i.e. "frequent flyers", language that you don't understand and for which you need to get an explanation.)
- Researcher's impressions (clear discomfort of participants as they interact or when you ask a question, excitement or relief, your own discomfort, confusion or depression. Feelings of hope...)
- Analysis (tentative hunches, emerging patterns, links between observation episodes, things that need to be followed up, ideas for future observation sessions.)

Advice:

- Jot down details of what you sense is important.
- Jot down concrete sensory details about action and talk, paying special attention to those you could easily forget.
- Use jottings to signal general impressions and feelings you have, even if you are unsure of their significance at the moment.
- When field observations bring back memories of previous events, jot the memories down- identified as such- in your jotted notes.
- Avoid confusing evaluative assertions with descriptive jottings (see below)
- Think carefully about how you are going to keep these jotted notes private while in the field, e.g. don't flip your notebook so that the person you are talking with can see your observations about others. Paraphrased from (Lofland et al., 2006)

Appendix E : Table of Initial Themes and Codes

| Themes | Codes |
|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Priorities/Life Changes | Retirement Care for Family Care for other health needs Money Moving Busyness Changing priorities |
| Self-Perceived Hearing Loss | Conversations with Others Length of Time from First Noticing Hearing Decrease Acceptance/Denial Ownership of Hearing Loss Social Settings Work/Volunteering Safety/Security Comparison to Others with Hearing Loss Function of Aging Process Activity Limitation Use of Strategies Severity of Hearing Loss TV Emotional Response to Hearing Loss |
| Age | Consideration of Age in Recommendation Made by Medical Professional Aging Process Perceived Age Energy Level Changing Priorities Relationships with Others |
| Money | Cost Medical Expenses (in General) Funding Priority of Money Placement/Allotment Payment Plans Replacement in a Few Years |

| Themes | Codes |
|------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Information Gathering | Independent Decision Making Hearing Loss Incorrect Information/Belief Systems Which Clinic to Go To Trial Period Comparing Hearing with Other Medical Areas Expectations Technology and Hearing Aid Options Style Price One Aid Versus Two Communication Strategies Sources of Information Availability of Information Regarding Hearing and Hearing Aids Other Assistive Devices Hearing Aid Care |
| Influence of Others | Family/Close Friends Overlapping Relationship of Family/Friends and Medical Professionals Audiologist or Other Professional Interaction with Others with Hearing Loss |
| Process | Emotional Funding Other Medical Needs Amount of Information and Decisions to Be Made Healthcare System Versus Private Clinic Versus Non-Profit |
| Personality/Emotions/ Psychological Factors | Personal Descriptions Denial Locus of Control |
| Appearance/Stigma | Age Discretion of Aid Appearance of not hearing versus wearing hearing aids Self-Image Disability Vanity Not a Concern Other's Perception of the Hearing Aid |