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# The Experiences of Elderly Service users with regard to public Audiology Services in Ireland

**Caitlin Orna O’Hehir**

**CARL Research Project**

in collaboration with

**Friendly Call Cork**



<b>Name of student(s):</b>	Caitlin Orna O’Hehir
<b>Name of civil society organisation/community group:</b>	Friendly Call Cork
<b>Name of community group liaison person:</b>	Brenda Barry
<b>Academic supervisor(s):</b>	Dr. Siobhán Laoide-Kemp
<b>Name and year of course:</b>	MSc Audiology Year 2
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- promote and support public access to and influence on science and technology;
- create equitable and supportive partnerships with civil society organisations;
- enhance understanding among policymakers and education and research institutions of the research and education needs of civil society, and
- enhance the transferrable skills and knowledge of students, community representatives and researchers ([www.livingknowledge.org](http://www.livingknowledge.org)).

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## Abstract

**Background:** As life expectancy increases, there is a corresponding increase in age-related conditions including deterioration of hearing acuity due to ageing (presbycusis). Individuals with presbycusis have been reported to exhibit depression, suffer social isolation and a decline in cognitive function. Recent research has identified multiple barriers, which influence hearing aid uptake, including inadequate audiological rehabilitation. What are the experiences of older service users with regard to public Audiology Services? There is no research currently available analysing the public Audiology care pathway for the older population in Ireland.

**Aim:** This study aims to explore the experiences and views of older adults with hearing loss, who live alone, during their journey through the public Audiology Services i.e. from their direct referral to the follow-up appointment post hearing aid fitting. The research project was conducted in collaboration with a community partner *Friendly Call Cork* under the Community-based Academic Research Link (CARL) in University College Cork (UCC).

**Method:** This study was a pilot study. In order to collect data, a mixed method research design was adopted. A latent thematic approach was used to analyse the qualitative data. The quantitative data was presented using tables.

**Results:** The student researcher visited 5 members of *Friendly Call Cork* accompanied by a Volunteer who was already familiar to them. The members responded to the questions in the questionnaire during these home visits. The results revealed defined areas along the public Audiology care pathway which would

support this vulnerable population: accessibility of services, advocacy, monitoring of onward referrals and patient progress.

**Conclusion:** The findings highlight that older adults who live alone require specific and targeted supports including advocates, additional follow up appointments and counselling sessions.

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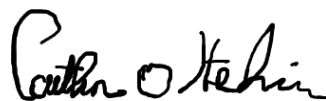
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without you. Thank you for providing me with endless opportunities. I am forever grateful.

**Declaration:**

**The dissertation submitted is the candidate's own work  
and it has not been submitted for another degree, either at  
University College Cork or elsewhere.**

**Signed:**



Catha O'Keefe

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**Abbreviations:**

Patient-Centered Care.....	<b>PCC</b>
Age-related Hearing Loss.....	<b>ARHL</b>
Sensorineural Hearing Loss.....	<b>SNHL</b>
Quality of Life.....	<b>QOL</b>
Years Living with a Disability.....	<b>YLD</b>
Alzheimer's Disease.....	<b>AD</b>
Audiological Rehabilitation.....	<b>AR</b>

## Chapter One – Introduction

### Outline

This research study investigated the experiences of older adult service users who live alone with regard to public Audiology Services in Ireland. Participants were in the 65+ age group and members of a community-based organisation in Cork City called *Friendly Call Cork*. This chapter will discuss the purpose of the Community-based Academic Research Link (CARL) and outline the rationale of the study.

### Background

Age-related hearing loss (ARHL) occurs due to damage to the hair cells of the inner ear. Hearing loss can have a major impact on the functional, social and psychological well-being of an individual. Despite major advances in hearing aid technology in recent years only a minority of individuals use their hearing aids. This is particularly true of older adults.

### Rationale for the study

This research study was carried out in collaboration with a community group based in Cork City known as *Friendly Call Cork*. It was conducted under the auspices of CARL the Community-based Academic Research Link (CARL) in University College Cork (UCC). *Friendly Call Cork's* principle aim is to help mitigate loneliness and isolation among older adults in the city centre. They do this through the use of daily phone calls and home visits. This study was selected because of the potential benefit to *Friendly Call* members by improving their daily communication with the organisation.

**Aim of the study:** The aim of the research study was to explore the experiences of older adults Public Audiology service users, who live alone.

Two research questions were developed in order to explore these areas:

- What are the experiences of older adults aged 65+ who are members of *Friendly Call Cork*?
- What improvements, if any, are needed in the Audiology care pathway in Ireland?



## Chapter Two - Literature Review

### **Presbycusis – Age-related hearing loss:**

Presbycusis, also known as Age-related Hearing Loss (ARHL), is a common cause of hearing loss affecting older adults worldwide. It has been estimated to affect approximately 70-80% of adults over 65 years old oftentimes resulting in a bilateral sensorineural hearing loss (SNHL) predominantly in the high frequencies (Sprinzi & Riechelmann, 2010). ARHL is a consequence of ageing and neurodegeneration, characterized by difficulties detecting sound and understanding speech. The condition is often underestimated, as individuals are often unaware of its serious consequences. The pathophysiology behind ARHL includes the degeneration of both the outer and inner hair cells of the cochlea, atrophy of the stria vascularis and degeneration of the spiral ganglia (Rutherford, 2018). Hearing loss can have a profound impact on several domains of an individual's life including the functional, social and psychological well-being of an individual.

### **Hearing Loss and Social Isolation**

Loneliness and social isolation is prevalent among older adults with an associated increased likelihood of physical and mental health problems, mortality and disabilities (Tomaka, Thompson & Palacios, 2006). The literature highlights a significant correlation between presbycusis, a decrease in Quality of Life (QOL) and psychological well-being. Individuals with presbycusis have been reported to exhibit depression, anxiety and suffer social isolation (Ciorba, Bianchini, Pelucchi & Pastore, 2012). A number of epidemiological studies have suggested that both loneliness and a decline in social interaction are significant risk factors in the development of dementia (Shankar, Hamar, McMunn & Steptoe, 2013). The use of

hearing aids increases social engagement and instils independence (Dawes et al, 2015) allowing individuals to carry out daily routines by eliminating communication barriers.

### **Hearing Loss and Cognitive Decline**

As life expectancy is increasing, it is important to develop preventative measures to help mitigate age-related conditions and improve QOL (Uchida, Sugiura, Nishita, Saji, Sone & Ueda, 2019). The negative psychological effects of ARHL are further exacerbated by the inclusion of cognitive deficits due to a decline in stimulation of the auditory centres within the brain (Dalton, Cruickshanks, Klein, Klein, Wiley & Nondahl, 2003). It has been previously suggested that some hearing aid users may have had a hearing loss for up to ten years before receiving a device (Davies et al, 2007), leading to a substantial period of auditory deprivation. Information gathered from the National Health and Nutrition Datasets 2005-2006 and 2009-2010 revealed that in the preceding 4 years only approximately 39.5% of older adults aged 70+ had a hearing test (Nieman et al, 2016). Recent research has proposed that hearing loss is independently linked to a decrease in cognitive function (Lin, 2011). A study by Kim, Lim, Kong and Choi (2018) revealed an elevated risk of Dementia coinciding with severe to profound hearing loss in a population of individuals over 40 years old (n=26,950). Lopes et al (2007) suggest that early intervention in hearing loss in patients with a mild cognitive impairment may be a beneficial approach in slowing the progression of cognitive decline (Lopes, Magaldi, Gandara, Reis & Jacob-Filho, 2007).

## **Hearing Aid Uptake among the Elderly**

Current research reports poor hearing aid uptake among older adults (Meister et al, 2008). Technological advances in recent years have led to the development of excellent hearing aid technology. Despite these advances only a minority of older adults with hearing loss are using hearing aids, specifically individuals with a mild hearing loss. The primary treatment for hearing loss is hearing aids, however approximately 25% of individuals who need these devices use them (Kochkin, 2000). In addition to this, only 50% to 70% of these individuals use their hearing aids regularly and are satisfied with them (Perez & Edmonds, 2012). A national study of hearing aid use in older adults with a mild-to-moderate hearing loss in the United States revealed an adoption rate of 4.3% to 22.1% (Chien & Lin, 2012).

Research into the identification of factors which influence hearing aid uptake including the care pathway and patient experience would provide valuable insight.

A study by Meister et al (2008) discussed a number of factors, which impact hearing aid uptake. They included (i) false expectations and (ii) low trust concerning the benefit of hearing aids. In another study carried out by Kochkin (2000) reasons for poor hearing aid use included (i) unsatisfactory comfort and fit, (ii) poor benefit and (iii) substandard performance in background noise. These factors are specifically related to the service provided to these individuals. Although hearing aids technologies may play a critical role in enhancing communication and hearing abilities, the significance of good audiological service delivery and individualized rehabilitation programs in hearing health remains underexplored. These services include a comprehensive assessment of an individual's hearing, an extensive treatment plan tailored specifically to an individual's needs and audiological counselling. A missed opportunity in delivering this kind of service particularly

among older adults who may need extensive counselling in hearing aid use and benefit, can lead to a decrease in hearing aid compliance. It has been reported that even experienced hearing aid users experience difficulties e.g. a poor understanding of how their hearing aid functions (Desjardins & Doherty, 2009). The majority of hearing aid users are older adults and therefore may have dexterity problems (Erber, 2003). Consequently, more counselling is needed in addition to a thorough assessment of a patient's ability to use these devices. It has been concluded that one of the primary causes of poor hearing aid use is discomfort and difficulties inserting the hearing aids. It is therefore crucial that the hearing aid fitting is followed by the appropriate support and counselling (Bertoli et al, 2009).

### **Audiology and Patient-Centred Care**

Patient-centred care (PCC) focuses on a patient's individual needs, utilizing an amalgamation of a patient's goals, priorities and values in order to enhance patient engagement in the Audiology clinic. The literature supports PCC connecting it with improvements in quality of care, increased adherence and greater ratings of care (Fix et al, 2017). It aims to improve patient outcomes and increase patient satisfaction. There is an increasing recognition of PCC and the need for PCC as part of a comprehensive audiological service (Laplante-Levesque, Hickson & Grenness, 2014). Recent studies discussing communication in Audiology Clinics, has established that Audiologists often focus on hearing aid verification providing a great deal of technical information, oftentimes inadequately dealing with a patient's emotional concerns (Ekberg, Grenness & Hickson, 2014). It has also been suggested that patients are often minimally involved in their own rehabilitation plan (Grenness, Hickson, Laplante-Levesque, Meyer & Davidson, 2015b). Additionally, concerns regarding patient education have arisen with many patients reporting that the

information they have been provided with is complex and vague (Nair and Cienkowski, 2010). Another study by Kelley et al (2013) involving 240 older adults with a hearing loss reported that they lacked confidence in the hearing aids they had been provided with and that more information and psychological support was required. This emphasizes the large gap which exists between the service required by patients and the Audiology services they receive. Grenness et al (2014) emphasized that more research is required in order to optimize PCC in audiological rehabilitation. There is currently no research available, focusing solely on older adults who live alone, during their journey through the public Audiology Services in Ireland.

### **Conclusion**

Recent research highlights the issues currently evident in Audiology Services and the need for improvements in audiological rehabilitation in order to improve patient education and patient outcomes. However, this has not been investigated within the Irish context. This represents a gap in the literature and this study aims to fill that gap.

## Chapter 3 - Methodology

### **Ethical Considerations**

Ethical approval was provided through the Clinical Therapies Social Research and Ethical Committee (CT-SREC) in the University College Cork (UCC) before the commencement of the study.

### **Research Design**

A mixed methods research design was adopted for this study based upon the mixed method approach described by Creswell et al (2011) (See Appendix V). This method merges elements of quantitative and qualitative data with the ultimate goal of strengthening and expanding the conclusions of a study. The rationale for using a mixed method research approach in this study was to ensure that participants were given the opportunity to have their voices heard. This in turn allowed the findings of the study to be firmly grounded in the participant's personal experiences.

### **Study Sample**

Participants in this study were recruited through *Friendly Call Cork*. *Friendly Call Cork* selected participants with a hearing loss and who wear hearing aids. 12 participants were contacted however due to Covid-19, only 5 participants were included in the study. Participants met the inclusion/exclusion criteria proposed for the study.

### **Table 1 Inclusion and Exclusion Criteria for Participant Selection**

<b>Table 1: Inclusion and Exclusion Criteria for Participant Selection</b>	
<b>Inclusion Criteria</b>	<b>Exclusion Criteria</b>
<ul style="list-style-type: none"> <li>• Older adults over 65 years old from <i>Friendly Call Cork</i> who attend public Audiology Services in Ireland</li> <li>• who have been diagnosed with a hearing loss and</li> <li>• who were fitted with a hearing aid.</li> </ul>	<ul style="list-style-type: none"> <li>• Older adults over 65 years old from <i>Friendly Call Cork</i> who do not attend public Audiology Services in Ireland</li> <li>• who have not been diagnosed with a hearing loss and</li> <li>• who do not use a hearing aid.</li> </ul>
<ul style="list-style-type: none"> <li>• Older adults who do not have a cognitive impairment.</li> </ul>	<ul style="list-style-type: none"> <li>• Older adults who have a cognitive impairment.</li> </ul>
<ul style="list-style-type: none"> <li>• Older adults who are not vulnerable and able to communicate</li> </ul>	<ul style="list-style-type: none"> <li>• Older adults who are vulnerable and unable to communicate</li> </ul>
<ul style="list-style-type: none"> <li>• Older adults who do not have an intellectual disability.</li> </ul>	<ul style="list-style-type: none"> <li>• Older adults who have an intellectual disability.</li> </ul>

The participants were provided with an information sheet (See Appendix I). The information sheet included details regarding confidentiality and anonymity.

Permission was sought using a consent form (See Appendix II). A home visit was made to participants where a questionnaire was used to collect data. The home visit was conducted by the student researcher (Caitlin O’Hehir) accompanied by a volunteer from *Friendly Call Cork*.

**(i) Data Collection**

The data in this cross-sectional study was collected using a questionnaire. The questionnaire used was built around an evaluation framework developed by *Deloitte Access Economics* who were commissioned by a non-profit organization in the UK known as *Action on Hearing Loss* (Deloitte Access Economics, 2013). The questionnaire was adapted to the Irish context and adapted further to ensure that the participants had a clear understanding of each question. Additional questions on accessibility, the degree of hearing loss and hearing aid usage were included in order to thoroughly assess multiple aspects of the Audiology care pathway. The questionnaire incorporated both open and closed questions. Open-ended questions were selected to allow participants to share their experiences and views without cues providing insight and perspective.

**(ii) Data Collection:**

*Friendly Call Cork* distributed the information sheet (See Appendix II), the consent form (Appendix III) and the questionnaire (See Appendix IV) to 12 potential participants who met the inclusion criteria for the study. The information sheet included details about the project, the student researcher, as well as details regarding confidentiality, anonymity, the right to withdraw from the study and data storage details. A home visit was made by the student researcher and a volunteer from *Friendly Call Cork* to participants who had consented to take part in the study. *Friendly Call Cork* had liaised with the participants to arrange times and dates which suited them, the student researcher and a *Friendly Call Cork* volunteer who was familiar to the participants. The student researcher aided participants, who demonstrated dexterity and literacy problems, to fill out the questionnaire. The information sheet, consent form and questionnaires were returned to the Chief Investigator (Dr. Siobhán Laoide-Kemp) in a stamped addressed envelope. The data



was then scanned and converted to an anonymized form immediately. The data will be stored for 10 years in a password protected folder on UCC OneDrive as per the UCC Code of Conduct (UCC, 2018).

### **Data Analysis**

The questionnaire used was composed of 21 questions divided into the categories below:

**Table 2 Information categories gathered using the questionnaire**

Hearing loss and hearing aid usage	Q1, Q2, Q3, Q4, Q21
Accessibility	Q.5
Information and support	Q6, Q7, Q9, Q11, Q12, Q18, Q20
Hearing aid maintenance	Q14
Psychosocial effects	Q15, Q16, Q17
The appointment	Q8, Q10
Contact from services	Q13, Q19

### **Quantitative Data Analysis**

Questions 1-4, 13-14, 16 and 18 from the questionnaire were *tick box*/closed questions. Question 14 used a Likert Scale. Questions 8-10, 15, 17 and 19-20 also partially contained *tick box* questions. The results to these questions were displayed using tables.

## **Qualitative Data Analysis**

Questions 5-12, 15, 17 and 19-20 while using *tick box* questions also incorporated a comments section. The latter provided additional insight into the research topic using the participant's own voice. Question 21 was an open question, providing a platform for participants to discuss their experiences using the phone. This was significant because the phone was the means of communication that *Friendly Call Cork* used daily to keep in touch and check in with this group. Thematic analysis was used to analyse the qualitative data collected (Braun & Clark, 2006).

## **Thematic Analysis**

Thematic analysis is the process of recognizing, analysing and documenting patterns or themes within the qualitative data collected. In order to analyse the data obtained, the 6 step thematic analysis framework described by Braun & Clark (2006) was employed. The first step involved careful reading of the participant's responses in their own voice. This was done a number of times using contemporaneous note-taking of initial thoughts in order to achieve familiarity with the data. Multiple codes and the initial themes were generated. Triangulation was achieved by comparing these themes and codes with the analysis of a sub sample carried out by the PI (Dr. Siobhán Laoide-Kemp). A thematic map was then developed in order to visualise the relationship between themes. The initial themes were then further reviewed as part of this iterative process.

## **Chapter Four - Results**

### **Outline**

The results obtained from the data collected using questions 1-4, 8-10, 13-14, 15, 17 and 19-20 will be displayed as follows through the use of tables. The themes developed from the qualitative data in the comments section (questions 5-12, 15, 17 and 19-21) will be displayed using diagrams.

### **Profile of participants**

There were five participants engaged with this study. In light of the challenges they deal with on a daily basis, this group of participants could be described as determined, resilient and capable individuals.

**Table 3 Profile of Participants**

<b>Table 3: Participant Profile</b>	
Participant	Description

Participant 1	Female, living alone, medical card user, wheelchair user. She suffers from hearing loss, cerebral palsy and arthritis
Participant 2	Male, living alone, medical card user with a hearing loss
Participant 3	Female, living alone, medical card user with a hearing loss
Participant 4	Male, living alone, medical card user. He is a wheelchair user and a double amputee who suffers from a hearing loss.
Participant 5	Female, living alone, medical card user with a hearing loss

For the purposes of reporting, the participants will be referred to as P1, P2, P3, P4 and P5.

### 1. Preliminary Questions: Questions 1-4 from the Questionnaire

Responses to Question 1 see Table 4 below

<b>Table 4: The number of participants who currently wear hearing aids</b>		
Answer	Yes	No
Number of participants	4	1

Responses to Question 2 see Table 5 below

<b>Table 5: The self-reported degree of hearing loss of participants</b>					
Answer	Mild	Moderate	Severe	Profound	Unknown
Number of Participants	0	1	3	1	0

Responses to Question 3 see Table 6 below

<b>Table 6: How often the participants wear their hearing aids</b>				
Answer	Everyday	Most of the time	Occasionally	Never
Number of Participants	4	0	0	1

Responses to Question 4 see table 7 below

<b>Table 7: Did participants receive hearing aid(s) privately or from the public Audiology service (HSE Audiology)</b>		
Answer	Private	Public
Number of Participants	0	5

## **2. The Direct Referral Appointment: Question 5, 6, 7 and 8**

Responses to Question 5 see table 8 below

<b>Table 8: Did the participants find the Audiology clinic to be far away</b>		
Answer	Yes	No
Number of participants	5	0

Responses from Question 6 see table 9 below

<b>Table 9: Did the Audiologist provide information about different treatment options</b>		
Answer	Yes	No
Number of participants	1	4

Responses from Question 7 see table 10 below

<b>Table 10: Did the Audiologist offer participants a choice of hearing aids? i.e. colour</b>		
Answer	Yes	No
Number of participants	0	5

Responses from Question 8 see table 11 below

<b>Table 11: The direct referral appointment – patient satisfaction</b>					
Answer	Not satisfied at all	Somewhat satisfied	Neither dissatisfied or satisfied	Moderately satisfied	Completely satisfied
Number of participants	1	1	1	2	0

### **3. The Hearing Aid Fitting: Questions 9, 10 and 12 from the Questionnaire**

Responses from Questions 9 see table 12 below

<b>Table 12: Patient satisfaction with information provided on hearing aid usage at fitting</b>					
Answer	Not satisfied at all	Somewhat satisfied	Neither dissatisfied or satisfied	Moderately satisfied	Completely satisfied

Number of participants	1	1	1	1	1
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Responses from Question 10 see table 13 below

<b>Table 13: Patient satisfaction with hearing aid fitting appointment</b>					
Answer	Not satisfied at all	Somewhat satisfied	Neither dissatisfied or satisfied	Moderately satisfied	Completely satisfied
Number of participants	1	1	2	0	1

Responses from Question 12 see table 14 below

<b>Table 14: Did participants receive information on any support services or groups</b>		
Answer	Yes	No
Number of participants	2	3

**4. The Follow up Appointment: Questions 13 (a), (b), 14(a), (b), (c), (d), 15, 16, 17, 18 and 20**

Responses from Question 13 (a) see table 15 below

<b>Table 15: The number of participants who had a follow up appointment</b>		
Answer	Yes	No
Number of participants	2	3

Responses from Question 13 (b) see table 16 below

<b>Table 16: The number of participants who received a phone call from the Audiologist</b>		
Answer	Yes	No
Number of participants	0	5

Responses from Question 14 (using a Likert Scale) (a) see table 17 below

<b>Table 17: The confidence level of each participant when inserting their hearing aids before the follow up appointment on a scale of 1 to 5 where 1= not confident at all, 5= completely confident</b>					
Answer	1	2	3	4	5
Number of participants	2	1	2	0	0

Responses from Question 14 (b) (using a Likert Scale) see table 18 below

<b>Table 18: The confidence level of each participant when adjusting their hearing aids before the follow up appointment on a scale of 1 to 5 where 1= not confident at all, 5= completely confident</b>					
Answer	1	2	3	4	5
Number of participants	2	1	1	1	0

Responses from Question 14 (c) (using a Likert Scale) see table 19 below

<b>Table 19: The confidence level of each participant with looking after and cleaning their hearing aids before the follow up appointment on a scale of 1 to 5 where 1= not confident at all, 5= completely confident</b>					
Answer	1	2	3	4	5



Number of participants	1	0	2	1	1
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Responses from Question 14 (d) (using a Likert Scale) see table 20 below

<b>Table 20: The confidence level of each participant with fitting new batteries into their hearing aids before the follow up appointment on a scale of 1 to 5 where 1= not confident at all, 5= completely confident</b>					
Answer	1	2	3	4	5
Number of participants	1	1	2	1	0

Responses from Question 15 see table 21 below

<b>Table 21: How the hearing service has helped to improve how comfortable each participant is when speaking to or hearing people talk</b>					
Answer	No improvement	Some improvement	Moderate improvement	Great improvement	Communication is now perfect
Number of participants	1	1	1	2	0

Responses from Question 16 see table 22 below

<b>Table 22: The number of participants who felt the hearing service has helped to improve their confidence when talking to people</b>		
Answer	Yes	No

Number of participants	4	1
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Responses from Question 17 see table 23 below

<b>Table 23: The number of participants who felt the hearing services helped to reduce any feelings of isolation</b>		
Answer	Yes	No
Number of participants	4	1

Responses from Question 18 see table 24 below

<b>Table 24: How much participants felt the hearing service supported them to manage their hearing</b>					
Answer	No support	Some support	Moderate support	Great support	All the support you require
Number of participants	1	1	2	1	0

Responses from Question 19 see table 25 below

<b>Table 25: Overall patient satisfaction with their follow up appointment or telephone call</b>	
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Answer	Not satisfied at all	Somewhat satisfied	Neither dissatisfied or satisfied	Moderately satisfied	Completely satisfied
Number of participants	3	0	0	2	0

Responses from Question 20 see table 26 below

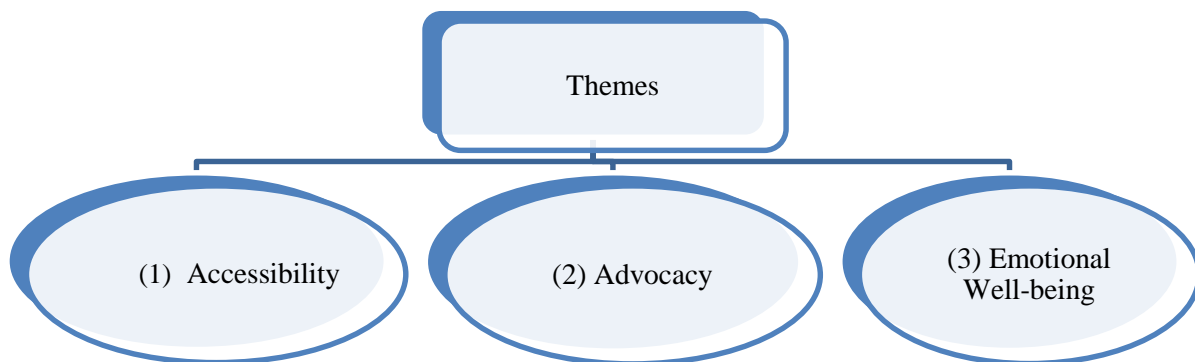
<b>Table 26: Do participants feel their hearing aids allow them to engage in activities they were unable to engage in before</b>			
Answer	Not applicable	Yes	No
Number of participants	1	2	2

### **Thematic Analysis**

Three central themes were identified using the qualitative data obtained in this study in response to the comment sections offered in Questions 5-12, 15, 17 and 19-21.

These themes included (1) Accessibility, (2) Advocacy and (3) Emotional well-being. In addition to this, subthemes were identified. The qualitative themes are represented in the diagram below (Figure 1.).

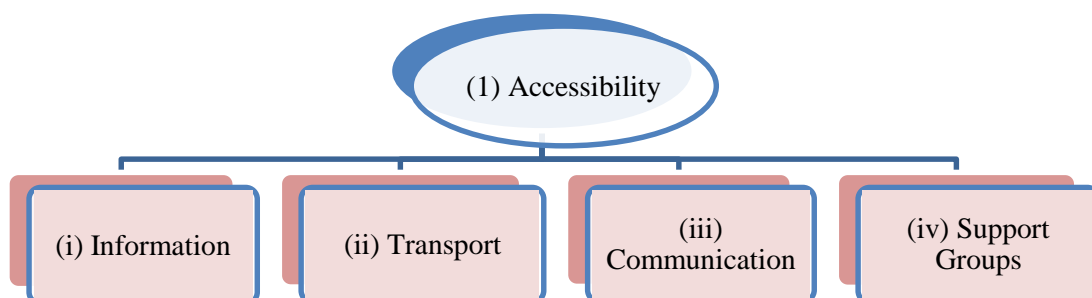
**Figure 1: Themes and Subthemes**



### Theme 1: Accessibility

*Accessibility* was the first theme identified. This was divided into subthemes (i) *information*, (ii) *transport*, (iii) *communication* and (iv) *support groups* (figure. 2).

**Figure 2: The Theme of *Accessibility***



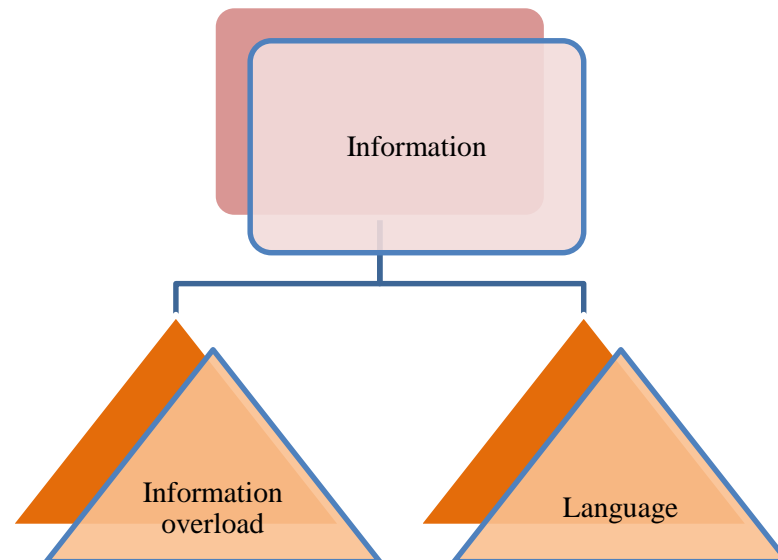
#### ***Subtheme (i) “Information”***

The subtheme “*information*” encompassed the guidance and support provided by the Audiologist along the patient journey. Participants felt more written information and further explanation was needed regarding hearing aid usage, maintenance and the repairs clinic.

*P1: “They only went through it once”*

*P2: "I was not given a leaflet on the repairs clinic, just told verbally"*

**Figure 3: The subtheme *information* and accompanying codes**



The code "*Information overload*" was identified when patients expressed feelings of being overwhelmed with the wealth of verbal information provided. Patients emphasized the difficulty in retaining all this information when presented in one appointment.

*P5: "More written information would have been great"*

*P2: "Too much information to take in"*

The second code "*Language*" was identified as participants highlighted that they felt when Audiologists were conveying the information the language used in the clinic was difficult to understand.

*P2: "I did not understand the language they were using"*

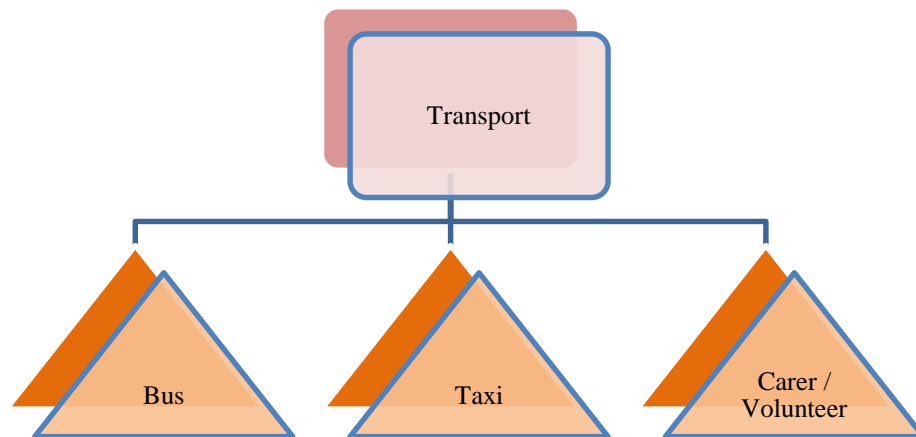
*P2: "It was very technical"*

***Subtheme (ii) "Transport"***

The subtheme “*transport*” emerged as participants described challenges with regard to accessing the Audiology clinic. This was divided into a number of codes:

“*Taxi*”, “*Bus*”, “*Volunteer/Carer*”.

**Figure 4: The subtheme *transport* and corresponding codes**



A problem which arose with regard to the “*Bus*” was that, due to the bus routes, participants had to take two buses in order to reach the Audiology clinic. This was difficult for wheelchair users. The code “*Taxi*” was identified for those patients with mobility issues. Due to the difficulty of using public transport, the patients felt they really had to rely upon taxis to access the clinic. This was an additional expense.

*P5: “I have difficulty walking. The taxi was expensive.”*

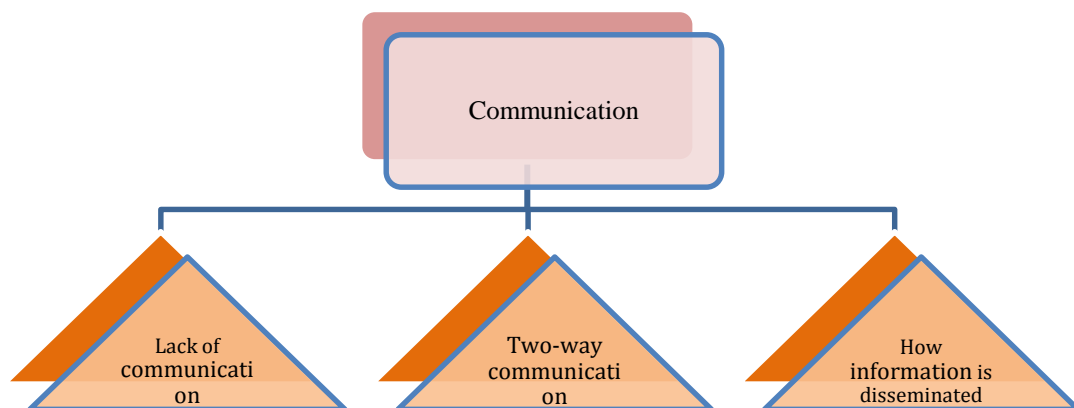
The third code “*Volunteer/Carer*” was identified as participants revealed that sometimes one volunteer from *Friendly Call Cork* or a carer helped them to attend their appointment at the Audiology Clinic.

*P1: “Sometimes a carer or a volunteer from Friendly Call brings me”*

***Subtheme (iii) “Communication”***

The third subtheme “*Communication*” encompasses how information was imparted by the Audiologist and also how participants communicated with the services. This subtheme was divided into three different codes “*Lack of communication*”, “*Two-way communication*” and “*How information is disseminated*”.

**Figure 5: The subtheme *communication* and codes attached**



“*Lack of Communication*” was a recurring refrain in the data. Participants reported considerable difficulty with communication. Their Audiology Clinic had relocated 4 years before, but 3 out of 5 participants in this study were not aware of this. These participants had not returned to the Audiology Clinic in approximately 5 years. This included *the repairs clinic* where they could have had their tubing changed.

*P2: “I never knew it was relocating”*

*P3: “I have never been to the new place”*

The code “*How information is disseminated*” was attached as 3 out of the 5 participants reported that they did not receive a follow up appointment following relocation.

*P1: "I did not have a follow up appointment"*

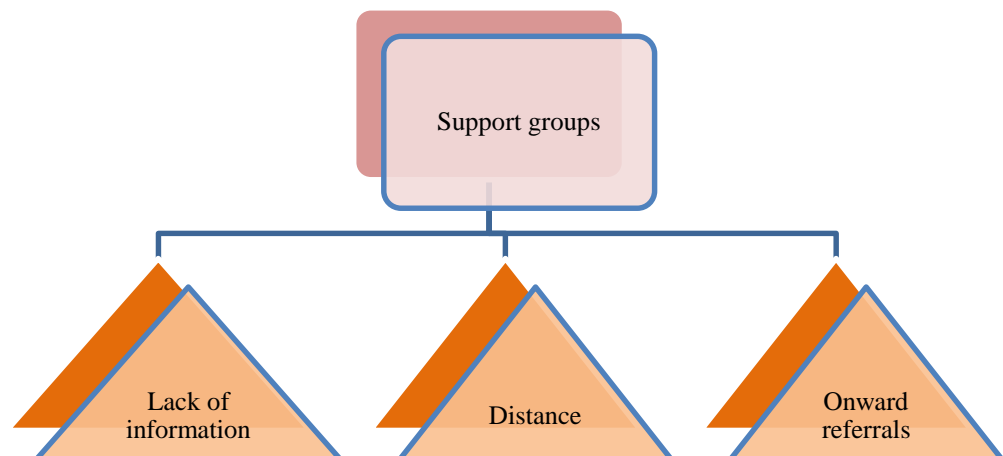
The "Two-way communication" code represented those participants who reported that they had not been contacted by the Audiology services also revealed that they had not attempted to contact the services themselves.

*P3: "They never contacted me"*

#### **Subtheme (IV) "Support Groups"**

The fourth subtheme to emerge was "Support Groups". These encapsulate the types of support networks provided for individuals as well as their accessibility for participants. This subtheme was coded into three categories "Lack of information", "Distance" and "Onward referrals".

**Figure 6: The subtheme *support groups* and accompanying codes**



Support groups allow individuals to connect with one another and discuss mutual challenges each faces. The code *lack of information* was attached to the subtheme *support groups* as 2 out of 5 participants reported receiving information regarding support groups.

*P4: "No, nothing on support groups"*



*P2: "I really needed more support and help"*

Those who did receive information in relation to support groups felt the support groups were difficult to access due to distance (leading to the code "*distance*") and due to the lack of a bus route This in turn meant a taxi had to be used which led to additional expense.

*P2: "A group for people with new hearing aids but the location was far away and taxi too expensive"*

P1 reported having received information on the *Cork Deaf Association (CDA)*, where she signed up to sign language classes. P1 has cerebral palsy and arthritis and as a result found these classes challenging. The third code "*Onward referral*" was attached to this subtheme.

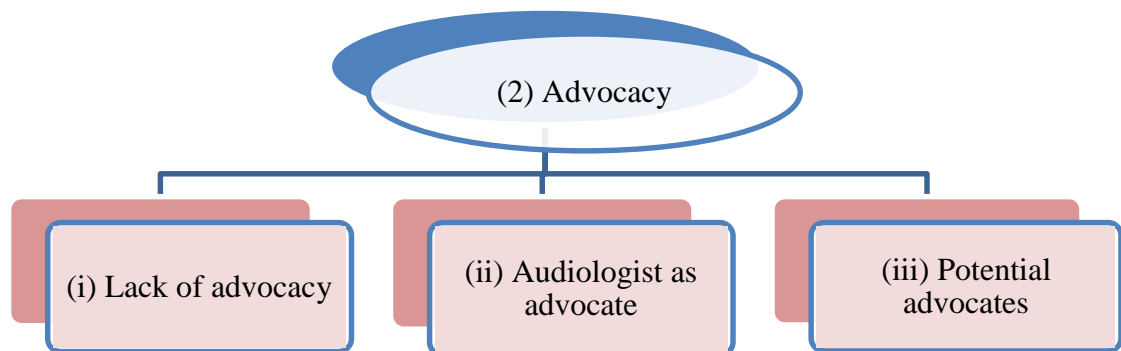
*P1: "The CDA signed me up for sign language classes but I found it very difficult"*

*P1: "I have arthritis"*

## **Theme 2: Advocacy**

The second theme "*Advocacy*" emerged underling the importance of helping patients to make informed decisions and speaking on behalf of those who need additional support. The theme encapsulates how outcomes are dependent on the level of advocacy and from this three subthemes emerged: (1) "*Lack of advocacy*", (2) "*Audiologist as advocate*" and (3) "*Potential advocates*".

**Figure 7: The theme of “Advocacy”**



***Subtheme (i) “Lack of advocacy”***

The first sub-theme “*Lack of advocacy*” emerged when issues regarding communication recurred within the data. The participants were having problems with hearing aid feedback and had not been to the Audiology services for several years.

*P1: “I found some of the words difficult to understand and I was afraid to say so”*

*P3: “It makes whistling noises”*

*P2: “The mould doesn’t fit right in one ear and is very uncomfortable”.*

***Subtheme (ii) “Audiologist as advocate”***

The second sub-theme “*Audiologist as advocate*” emerged as participants highlighted themselves that they needed more support.

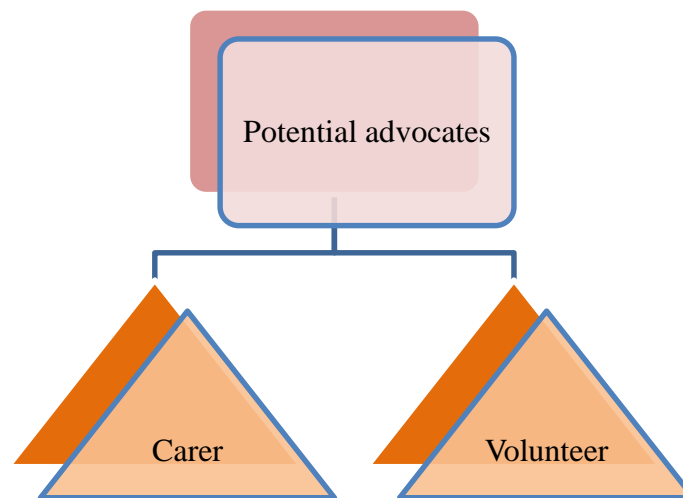
*P1: “I needed more explaining on how to put the hearing aids in and how to use the volume”*

*P1: "The Audiologist only went through it once"*

***Subtheme (iii) "Potential advocates"***

The third sub-theme identified was "*Potential advocates*". This theme was further divided into "*carer*" and "*volunteer*".

**Figure 8: The subtheme *potential advocates* and attached codes**



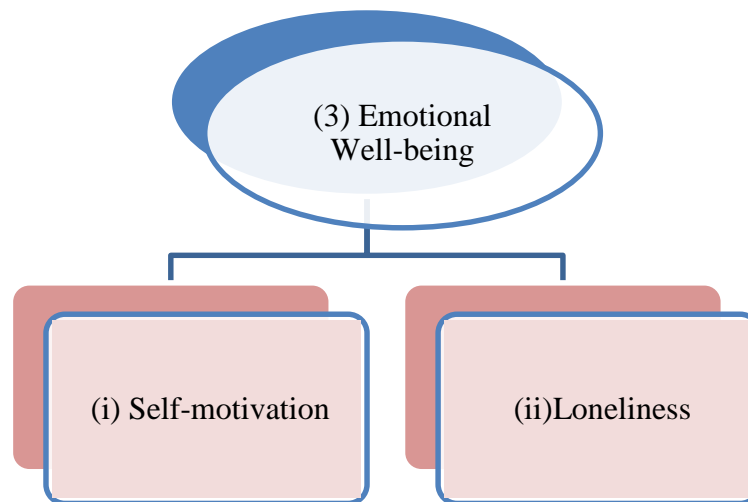
The participants who received help from a carer had more successful outcomes in terms of hearing aid maintenance, repair and also attended the clinic more frequently.

*P4: "My carer helps me"*

**Theme 3: Emotional Well-Being**

The third theme identified was "*Emotional Well-being*". This theme was further divided into two sub-themes "*Self-motivation*" and "*Loneliness*".

**Figure 9: The theme of "*Emotional Well-being*"**



### ***Subtheme (i) “Self-motivation”***

The sub-theme of “Self-motivation” emerged as participants portrayed their willingness and determination to improve their quality of life.

*P2: “I would love to be able to use them and hear my grandchildren”*

The participants also emphasized their love to connect with other individuals.

*P1: “I love to communicate”*

### ***Subtheme (ii) “Loneliness”***

The second sub-theme “Loneliness” characterises the impact hearing loss has on each participant’s life.

*P3: “I could not communicate well before”*

*P3: “It was great for my family to see how much my hearing loss affects me”*

The participants described feelings of loneliness and isolation in the absence of hearing devices.

*P5: “I felt embarrassed and isolated before. It was embarrassing asking people to repeat.”*

## **Chapter 5: Discussion**

This chapter will focus upon the central findings of the study and outline recommendations for potential future research in relation to the research question.

The central study aim is to document the experiences of older service users who live alone with regard to public Audiology services in Ireland and in turn raise awareness for the additional attention this vulnerable cohort require.

In Ireland, approximately one third of individuals over 65 years old live alone. 60% of individuals over 80 years old live alone. (ALONE, 2019). These older adults can be viewed as a hidden group of people with very few advocates. This study focuses on the challenges these older adult service users who live alone encounter during their audiological journey. The data collected over the course of the research allowed for a detailed study of the system and the areas which could be targeted as key improvement areas. The struggle of older service users to successfully engage with the system is a feature, but the struggle of the system to engage with its users is an equally important feature. Due to the vulnerable nature of this group of individuals who live alone, their voices often go unheard. However, with the appropriate recommendations and procedures put into place, the level of awareness can be increased and in turn patient experiences can be improved if the issues raised can be addressed.

The quantitative data collected in tables 4 -26 (see page 25-32) reveal that all participants (n=5) are public Audiology service users (see Table 7), with 4 out of 5 participants wearing their hearing aids every day (see Table 6). 100% of participants reported the Audiology clinic was far away (see Table 8). Only 1 out of 5 participants received information on different treatment options (see Table 9).

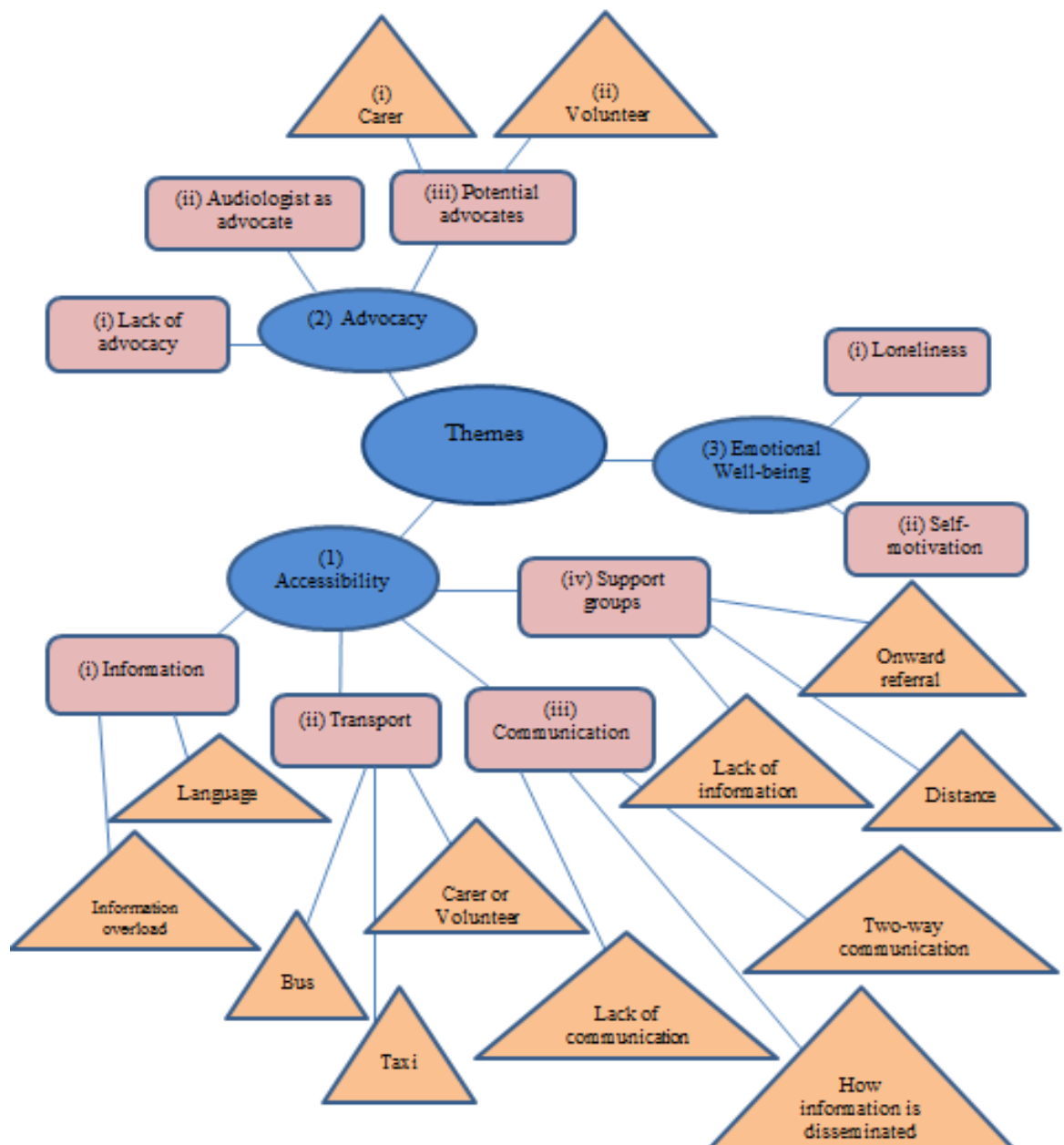
Participants were not completely satisfied with their direct referral appointment (See

table 11). The results show that only 1 participant was completely satisfied with their hearing aid fitting appointment and the information they were provided with (See table 12). Responses from question 12 reveal that 2 out of 5 participants received information on support services or local groups (see table 14). Data collected with regard to the follow up appointment shows that 2 out of 5 participants received a follow up appointment (see table 15), while none of the other 3 participants received a follow up phone call. Responses from question 14 reveal that no participant was completely confident in managing their hearing aids (See Table 17-20). The participants who wore their hearing aids everyday however felt the Audiology services helped to improve their QOL (see table 22 and 23 respectively). The results obtained in question 18 and 19 of the questionnaire revealed participants felt there was room for more support from the service (see table 24 and 25).

Overall, the results of the study strongly suggest that additional support is needed along every step of the audiological journey for the older person who lives alone. Despite the high level of motivation among this cohort, it was the challenges with regard to hearing aid management and accessibility of the services which affected patient experiences and outcomes. These findings are supported by Aazh and Moore (2017) who emphasized the critical role good audiological rehabilitation plays in successful outcomes.

The three themes identified within the qualitative data include *Accessibility*, *Advocacy* and *Emotional well-being*. Each emerging theme emphasized different areas of the patient journey which play a key role in patient experience and outcomes.

**Figure 10: The Qualitative Themes, Subthemes and Codes**



### **Theme 1: Accessibility**

The results of this pilot study indicate that factors affecting “*accessibility*” greatly influence patient experience and outcomes for older adults. Within the first subtheme “*information*” it was established that participants felt more written information and more in-depth explanation was required with regard to the management of their hearing aids. The way information is provided greatly impacts patient understanding, how this information is used and the ability to recall what was demonstrated in the clinic. A model introduced by Ley (1988) detailing the crucial factors in successful communication in healthcare, emphasizes the significant role memory plays in line with factors such as patient satisfaction and understanding. Kessels et al (2003) estimated that patients recollect only 40%-80% of what healthcare professionals advise and often recall less than half of the information provided correctly. The code “*information overload*” was attached when patients highlighted feelings of being overwhelmed with the vast amount of spoken information provided in just one appointment. McGuire (1996) stressed that the larger the amount of information provided results in a corresponding decline in the ability to correctly recall the information disclosed. The code “*language*” was added when participants felt the language used in the clinic was difficult to understand; they described the language as “*technical*”. Complex medical jargon imposes a barrier to understanding instructions and recommendations. This reduction in patient understanding may negatively influence joint-decision making and in turn limit successful hearing aid use (Sciacca, Meyer, Ekberg, Barr & Hickson, 2017). In order to facilitate Patient-Centered Care, it would be helpful for the Audiologist to address a patient’s emotional and practical concerns using simple language, ensuring that the



older patient who lives alone has a sufficient understanding of the information imparted in the Audiology Clinic. The aim is for this vulnerable group to ably partake in shared-decision making and therefore to independently manage their hearing aids.

The second subtheme "*transport*" details how the study participants accessed the Audiology Clinic. For older people who live alone and face transportation difficulties or who heavily rely upon others to attend the Audiology Clinic, each journey imposed a burden. Transport was further categorised with "*Bus*", "*Taxi*" and "*Carer/Volunteer*" codes. Difficulties in accessing the Audiology Clinic may discourage older people who live alone to seek additional help and support. Those who are wheelchair users reported that the cost of taxis inflicted additional stress. This cost is important to note as it may be considerable for those on a low income. Financial constraints have been suggested as a barrier in Audiology particularly for vulnerable populations (Blazer, Landerman, Fillenbaum & Horner, 1995). The study findings by Blazer et al (1995) is supported by this study where it was evident that individuals who received help in the form of a carer or volunteer were more likely to attend the clinic and in turn have more positive patient experience and outcomes.

The importance of effective communication between the Audiologist and the older person who lives alone was supported by previous studies including Mead and Bower (2002). They reported that effective communication allows for greater understanding in relation to treatment options and self-management. The findings of several studies, including this study, support the patients' preference for Person Centred Care in the Audiology Clinic (Laplante-Levesque et al, 2010, 2012). Three codes were attached to the subtheme "*communication*". The first code "*lack of communication*" highlighted the concerns of the older adult living alone with regard

to communicating with the service. One participant described contacting the clinic without success with regard to problems with the ear moulds and as a result has not worn the hearing aids since – “*The mould doesn’t fit right in one ear and is very uncomfortable*”. However, communication is not a one-way process. Oftentimes, a failure to acknowledge the importance of two-way communication prompts negative attitudes and conclusions (Kourkouta and Papathanasiou, 2014). This prompted the second code “two-way communication”. The participants reported that they had not received any contact from the Audiology Clinic, however 4 out of 5 participants did not contact the Audiology Clinic themselves. This group of older people living alone may be regarded as a passive group when it comes to reaching out. When the services relocated, 3 out of 5 participants did not receive a follow up appointment, hence the third code: “*how information is disseminated*”. Kreps et al (2005) emphasized that new strategies are needed to ensure that vulnerable individuals have easy access to health related information and that the mode of delivery is suitable. This study supports is in agreement with this.

Within the fourth subtheme “*support groups*” the importance of “peer” support emerges. “Peer” support groups allow individuals to link in with others who have a hearing loss and share each other’s experiences, concerns and coping strategies for daily life. Support groups can be an important additional source of information. A study by Smith, Shepard, Jepsen & Mackay (2015a) in Scotland included a review of a Sensory Support Centre which provided support services for hearing aid users in the area of hearing aid management. It was found that individuals who attended the support centre reported a decrease in feelings of isolation and an increase in self-confidence. The negative impact with regard to lack of support was borne out in this study – “*I did not receive information on support groups*”. “*Lack of information*”

The participants who did receive information were frustrated by the quality of information they were provided with.

The code “*distance*” was added when a participant felt the support group was difficult to access, due to the distance. “*The location was too far away and taxi too expensive*”. In this instance the taxi was the chosen mode of transport, as the location of the support group was not on a bus route. This presented as a barrier to older people living alone. The subtheme “*onward referral*” emerged. An example was when an older person living alone had been referred to a support group which recommended sign language classes. The older person could not take them up as they suffered from arthritis and cerebral palsy. Additional information from the Audiologist to accompany this onward referral may have prevented this.

Individualised audiological care for older people who live alone includes reciprocal and effective informed communication.

### **Advocacy**

The study participants who received additional support in the form of a carer or a volunteer demonstrated better patient outcomes than the participants who did not have this support. Advocacy promotes ease in access to care, assistance in navigating the audiological journey and help in communicating health inequities (Hubinette, Dobson, Scott & Sherbino, 2016). The study supports this finding. 3 out of 5 study participants reported that they had not returned to the (Audiology Clinic for several years because they lived alone and did not have an advocate.

The second code “*Audiologist as advocate*” introduces the crucial role of the Audiologist whose influence can have a positive effect in the day to day lives of the older adult living alone. Kelley, Kraft-Todd, Schapira, Kossowsky & Riess (2014)

discussed the impact the relationship between the Audiologist and patient has on patient outcomes. The study reported that patients needed practical and psychological support. Previous research emphasised the need for more follow up appointments among the older population (Kelly, Tolson, Day, McColgan, Kroll & Maclaren, 2013). This has been borne out in this study: the older adults who live alone emphasized that more routine support and monitoring was needed. It was extrapolated from the data that participants would have appreciated if the Audiologist had reached out more – *“I really needed more support and help”*. The perseverance of an advocate guarantees that patients continue to receive specific attention while promoting independence. This is even more important in this vulnerable cohort that lives alone. By building a good rapport with the patient Audiologists may also inspire self-advocacy.

*“Potential advocate: carer”* and *“potential advocate: volunteer”* were recurring subthemes. The participants with a carer or those who received help from a volunteer attended the Audiology Clinic for a follow up appointment, maintained their hearing aids and frequently attended the repairs service if their tubing needed to be changed. However, those who did not receive additional help had less successful outcomes. This finding suggests the unequivocal need for advocates among this group of individuals.

### **Emotional Well-being**

The data obtained in this study revealed strong feelings of *“loneliness”* (subtheme *no.1*) among older adults with an acquired hearing loss. There is a prominent relationship between loneliness and an individual’s risk of mortality and morbidity (Holt-Lunstad, Smith, Baker, Harris & Stephenson, 2015). A previous study by

Sung, Li, Blake, Betz and Lin (2016) reported that hearing loss is independently correlated with loneliness due to a decline in communication skills and a reduction in social engagement. Participants in this study reported feeling lonely prior to receiving hearing aids, with 4 out of 5 participants describing the improvement hearing aids had on their quality of life – *“I could not communicate well before”*. This is in agreement with a study by Chisolm et al (2007) who concluded effective hearing aid uptake among the older had a positive impact on quality of life leading. It is important that this positive impact of good hearing aid use is maintained. Bertoli et al (2009) recommended to Audiologists that a hearing aid fitting followed by a comprehensive counselling session as well as support should problems arise, promotes successful long term use of hearing aids. Findings with regard to Question 20 in this study support this recommendation i.e. participants found it difficult to hear on the phone using their hearing aids and would have benefited from additional support in this area. This impacted on their daily phone call with *Friendly Call Cork* and thus potentially on other contacts too.

Participants also expressed the relief that family members, who when their relative had been fitted with hearing aid, realised the extent to which hearing loss had affected their daily lives. In this study, participants felt that their emotional concerns regarding their hearing loss were not addressed in the appointment i.e. how the hearing loss affected their relationships and daily lives. The emphasis instead was on hearing aid verification – *“It was very technical”*. This is in agreement with a study by Ekberg et al (2014) where it was found that Audiologists often overlooked the emotional concerns highlighted by patients. If Audiologists attend to the emotional concerns of an older person who lives alone, it will promote patient-clinician relationships and improve the results of audiological rehabilitation.

A key subtheme within the data included “*self-motivation*” (subtheme no. 2). The adoption of social psychological theories to behaviour changes in healthcare centre around encouraging action through motivation (Hardcastle et al, 2015). It was evident that all participants in this study were highly motivated individuals with 4 out of 5 individuals wearing their hearing aids every day. The predominant barrier was that they were not technology aware, and were not able to use their hearing aids on the phone. The potential positive force of this motivation was left underutilised. The participants also demonstrated motivation when 2 out of the 5 participants who received information on support groups attended these groups immediately. However, it was the accessibility of these support groups that was the issue. This motivation could be capitalised on by Audiologists if the older person living alone was better informed through additional and timely follow up appointments as well as additional information accompanying onward referrals.

### **Key findings and recommendations**

The research findings highlight 7 specific areas along the public Audiology pathway which could potentially improve experience and outcomes for older persons living alone:

- (1) The appointment time
- (2) The information provided by the Audiologist
- (3) The older person living alone without an advocate and without support
- (4) The communication between the Audiology services and the older adult living alone
- (5) The need for advocacy

(6) Onward referral accompanied by a report

(7) Additional follow up appointments (See table 27 below).

<b>Table 27: Key findings and recommendations</b>		
1	Appointment time	Patients felt overwhelmed with the vast amount of information provided in each appointment and reported that the Audiologist explained it once. It would help if Audiologists went through the explanation a number of times to aid in improved understanding. An extended appointment time for older adults who live alone may prove beneficial.
2	Information provided by the Audiologist	Participants felt more verbal and written information was needed using less technical language to promote ease in understanding. The construction of a more generalized leaflet using diagrams and simple language may be of benefit to older patients. A video recording of the session for the older person living alone to take away may also be useful.
3	The older person who lives alone without an advocate or support	When an individual is referred to the Audiology services it may be beneficial if they are asked if they are availing of any services e.g. <i>Friendly Call Cork</i> . If this is the case it would help if this is noted on the file and considered a red flag requiring specific attention and follow up.

4	Communication between the Audiology services and the older adult who lives alone	Data from this study pointed to a cessation in communication between the Audiology services and patients. A suggestion may be that all patients are given a specific name and number i.e. the secretary so they will know to whom they will speak in the Audiology Clinic. This would promote good two-way communication, encouraging patients to contact the services should they need help.
5	The need for advocates	In this small cohort of individuals who live alone, the two participants with the best outcomes appeared to be those who received help from a carer or volunteer.
6	Onward referrals	The development of integrated services between the HSE and other organisations e.g. the Cork Deaf Association may help mitigate this problem. A CDA questionnaire could be filled out by the Audiologist with consent from the patient and provided to the CDA upon referral.
7	Follow up appointments	All participants found it difficult to hear on the phone. This is quite significant as these individuals live alone and need to be able to contact services like <i>Friendly Call Cork</i> and the emergency services should they need help. This is even more important for those with additional needs. A questionnaire developed specifically focusing on question 14 and question 21 of the questionnaire used in this study would be an excellent indicator of hearing aid usage and patient progress.



**Limitations of the research:**

Initially, there was a sample of 12 participants, however, due to Covid-19 restrictions only 5 home visits could be conducted. 3 out of 5 participants had not returned to the Audiology Clinic for several years since relocating, therefore it was difficult to determine all of the challenges they faced at this time.

**Conclusion:**

This study aimed to shed a light on the experiences of older adult service users who live alone with hearing loss, with regard to public Audiology services and as a result, raise awareness with regard to the additional attention that this vulnerable cohort requires. There are specific areas along the public Audiology care pathway which influence successful hearing aid retention. However, with these key areas targeted and the appropriate recommendations and procedures put into place, patient outcomes could be improved. This is of great importance to both Audiologists and policy makers alike, who wish to contribute to improving the quality of life of older people. This can be done through individualized hearing rehabilitation programs in order to prevent possible decline in cognitive function and loneliness, with far reaching positive public health implications. As life expectancy increases, there is a corresponding need for comprehensive Audiology services in order to improve quality of life.

**Recommendations for future research:**

A recommendation for future research may involve research into the development of a leaflet for *Friendly Call Cork* volunteers along with a training day where

volunteers are taught about hearing aid maintenance including (1) how to change tubing (2) how to clean hearing aids and (3) how to adjust/manage hearing aids. In this way a volunteer from *Friendly Call Cork* could potentially act as the patient's advocate. This would also raise awareness of the importance of attending Audiology appointments and thus encourage and promote attendance at these appointments. Group audiological rehabilitation (AR) programs are not currently available in Ireland. The development of a group AR programme in the future may prove beneficial for older adults who live alone thus providing much needed additional support.

Older people with hearing loss who live alone are a distinct and vulnerable group who require particular attention. Guided by advocates, communicating effectively with the audiological services, using follow up support to manage their hearing aids and (where possible) appropriate assistive technology, they can be provided with the tools for sustained life changing improvements to their quality of life.

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**Appendix – I**

**Service User Questionnaire - Deloitte Access Economics (2013)**

## Appendix B: Service user questionnaires

Table B.1: Service user questionnaires

Questionnaire 1	
<b>HEARING ASSESSMENT</b>	
Q1a	At your assessment did you receive information about different treatment options, not only hearing aids? (yes / no)
Q1b	At your assessment, if you were considered to require a hearing aid, were you offered a choice of hearing aid? (yes / no / not applicable)
Q2	How satisfied were you overall with your hearing assessment? (1 = not satisfied at all, 2 = somewhat dissatisfied, 3 = neither dissatisfied or satisfied, 4 = moderately satisfied, 5 = completely satisfied)
<b>HEARING AID FITTING</b>	
Q3a	How satisfied were you with the information given to you at your fitting on how to use your hearing aid(s)? (1 = not satisfied at all, 2 = somewhat dissatisfied, 3 = neither dissatisfied or satisfied, 4 = moderately satisfied, 5 = completely satisfied)
Q3b	At the fitting, were you given information on who to contact if you have problems using your hearing aid(s)? (yes / no)
Q4	At the fitting, did you receive information on support services other than those to help you maintain and use your hearing aid(s)? e.g. lip-reading classes, assistive technologies, employment support, local support groups, communication support services (yes / no)
Q5	How satisfied were you overall with your hearing aid fitting? (1 = not satisfied at all, 2 = somewhat dissatisfied, 3 = neither dissatisfied or satisfied, 4 = moderately satisfied, 5 = completely satisfied)
<b>FOLLOW UP</b>	
Q6a	Prior to your follow up visit, how confident were you in inserting your hearing aid(s)? Please rate this on a scale of 1 to 5 where 1 = not confident at all, 5 = completely confident
Q6b	Prior to your follow up visit, how confident were you in adjusting your hearing aid(s)? Please rate this on a scale of 1 to 5 where 1 = not confident at all, 5 = completely confident
Q6c	Prior to your follow up visit, how confident were you in looking after and cleaning your hearing aid(s)? Please rate this on a scale of 1 to 5 where 1 = not confident at all, 5 = completely confident
Q6d	Prior to your follow up visit, how confident were you in fitting new batteries into your hearing aid(s)? Please rate this on a scale of 1 to 5 where 1 = not confident at all, 5 = completely confident
Q7	To what extent has your interaction with the hearing service led to an improvement in your communication? (0 = not applicable e.g. you had no communication problems previously, 1 = no improvement, 2 = some improvement, 3 = moderate improvement, 4 = great improvement, 5 = communication is now perfect)
Q8	Has your interaction with the hearing service provider improved your confidence? (yes / no / not applicable)
Q9	Has your interaction with the hearing service provider reduced any feelings of isolation? (yes / no / not applicable)
Q10	Has your interaction with the hearing service provider improved relationships with people around you? (yes / no / not applicable)

- Q11 To what extent has the hearing service supported you to manage your hearing loss? (0 = not applicable e.g. you felt fully supported previously, 1 = no support, 2 = some support, 3 = moderate support, 4 = great support, 5 = all the support you require)
- Q12 How satisfied were you overall with your follow up visit? (1 = not satisfied at all, 2 = somewhat dissatisfied, 3 = neither dissatisfied or satisfied, 4 = moderately satisfied, 5 = completely satisfied)

**Questionnaire II**

- Q1 Has your hearing aid(s) enabled you to engage in activities that you were unable to do before they were fitted? (yes / no / not applicable)
- Q2 Which of the following describes most closely how often you use your hearing aid(s)? (1= never, 2 = around 1/4 of the time, 3 = around half of the time, 4 = around 3/4 of the time, 5 = always)
-

## Appendix – II

### The experiences of older service users with regard to public Audiology Services in Ireland

#### Information Sheet

Thank you for your interest in this study. The purpose of this information sheet is to explain to you what the study is about and what your participation would involve. It is important to enable you to make an informed choice.

#### Student Researcher

My name is Caitlin O’Hehir and I am doing a Masters in Audiology in University College Cork. For my thesis I am conducting a study on the experiences and views of the older with regard to public Audiology services in Ireland. I have previously undergone Garda vetting.

#### Purpose of the Study

The purpose of this study is to use the information to help improve Audiology Services for the older in Ireland. Elderly people with hearing loss can experience loneliness and isolation. It is hoped that this study will play a part in helping with these problems. This would also help services like **Friendly Call Cork**. If you choose to participate, you will be asked to complete a questionnaire. I will meet you in your home along with a volunteer from **Friendly Call Cork**. I will ask you questions from this questionnaire. They will include questions on your hearing loss, the type of hearing aid you wear and also questions about when you got your hearing aids in the public Audiology Clinic.

#### Participation

Participation in this study is completely voluntary. There is no obligation to participate. You can refuse to answer specific questions or decide to withdraw from the study anytime up to the 1<sup>st</sup> of April 2020. All the information that you provide will be **confidential**. Your anonymity will be protected throughout the study; this means that nobody will know your identity. After you have completed the questionnaire I will go through the purpose of the study once again so that if you have any questions or concerns you can tell me then.

#### Anonymity and Data Protection

The responses on your questionnaire and your consent form will be stored safely in a password protected file on a computer in UCC. Only myself (Caitlin O’Hehir) and my Supervisor (Dr. Siobhán Laoide-kemp) will be able to access this information using a special password. We will shred the paper copies. The information will be stored for 10 years in

the university (UCC). The information you provide may contribute to research publications and/or conference presentations. Your information will be written as part of my MSc Audiology study.

If you feel distressed after participating in the research study, please feel free to contact myself and my Supervisor (Dr. Siobhán Laoide-Kemp). See our contact details below.

If you have questions before the study begins or if you have any questions after the study you can also contact us.

This study has obtained ethical approval from the UCC Social Research Ethics Committee.

If you have any queries about this research, you can contact me at:

<p><b>Student Researcher:</b> Caitlin O’Hehir Dept. of Speech &amp; Hearing Sciences, Brookfield Health Sciences Complex, UCC, Cork Email: <a href="mailto:114348861@umail.ucc.ie">114348861@umail.ucc.ie</a> Phone:</p>	<p><b>Supervisor:</b> Dr. Siobhán Laoide-Kemp School of Clinical Therapies, Brookfield Health Sciences Complex, UCC, Cork Email: <a href="mailto:siobhan.laoidekemp@ucc.ie">siobhan.laoidekemp@ucc.ie</a> Phone:</p>
--	--

Signed: \_\_\_\_\_

Caitlin O’Hehir

Signed: \_\_\_\_\_

Dr. Siobhán Laoide-Kemp

If you agree to take part in this study, please complete the consent form overleaf



### Appendix – III

#### **The experiences and views of Elderly service users with regard to public Audiology Services in Ireland Questionnaire.**

#### **Consent Form**

I.....agree to participate in “The experiences and views of Elderly service users with regard to public Audiology Services in Ireland” research study.

I understand that (Please tick):

- The aim of the study has been explained to me.
  
- I agree to participate in this study.
  
- I am participating voluntarily and understand that I can withdraw without any reason up to the 1<sup>st</sup> of April 2020.
  
- I understand that the information collected from my questionnaire will be stored in UCC for 10 years.
  
- I understand that I cannot be traced and that I will be anonymous
  
- I understand that this research is part of an MSc Audiology thesis and may be published in research journals or presented at research conferences.
  
- The contact details of the student researcher and supervisor have been provided to me should I need to contact them.

Signed: .....

Date: .....

PRINT NAME: .....

## Appendix – IV

### The experiences and views of Elderly service users with regard to public Audiology Services in Ireland Questionnaire.

#### The Research Questionnaire

Please answer by ticking the box

1) Do you wear a hearing aid(s) at the moment?

Yes  No

2) Do you know what kind of hearing loss you have?

Mild  Moderate  Severe  Profound  Unknown

3) How often do you wear your hearing aid(s)?

Every day  Most of the time  Occasionally  Never

4) Did you get your hearing aid(s) privately or from the public Audiology service (HSE Audiology)?

Private  Public

#### Direct Referral

5) Was the Audiology Clinic far away? Yes  No

How did you travel there?

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6) At your first appointment, did the Audiologist give you any information about different treatment options, or were hearing aids the only option that you got? Yes  No

Any other comments?

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7) When you saw the Audiologist that day, were you offered a choice of hearing aids? E.g. Colour Yes  No

Any other comments?

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8) How satisfied were you overall with your appointment that day?

1= not satisfied at all

2= somewhat dissatisfied

3= neither dissatisfied or satisfied

4= moderately satisfied

5= completely satisfied

Any other comments?

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### Hearing Aid Fitting

9) That day how satisfied were you with the information given to you on how to use your hearing aid(s)?

1= not satisfied at all

2= somewhat dissatisfied

3= neither dissatisfied or satisfied

4= moderately satisfied

5= completely satisfied

Any other comments?

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10) How satisfied were you with how your hearing aid was fitted at the Audiology clinic?

1= not satisfied at all

2= somewhat dissatisfied

3= neither dissatisfied or satisfied

4= moderately satisfied

5= completely satisfied

Any other comments?

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11) That day when you were fitted with your hearing aid were you given information on whom to contact if you had any problems? Yes  No

Any other comments?

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12) That day when you got your hearing aid at the Audiology clinic, did you receive information about any support services or local groups that you could join or ask for help? e.g., leaflet on local support groups Yes  No

Any other comments?

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**Follow up appointment**

13) (A) Did you have a follow up appointment? Yes  No

(B) Did the Audiologist phone you? Yes  No

14) Before you went back for your second appointment, after you were given your hearing aids:

A) How confident were you in putting in your hearing aid(s) by this time?

Please rate this on a scale of 1 to 5 where 1 = not confident at all, 5 = completely confident

1  2  3  4  5

B) How confident were you in adjusting your hearing aid(s) by this time?

1     2     3     4     5

C) How confident were you in looking after and cleaning your hearing aid(s) by this time?

1     2     3     4     5

D) How confident were you in fitting new batteries into your hearing aid(s) by this time?

1     2     3     4     5

15) Do you feel the hearing service has helped to improve how comfortable you are when you speak to people or hear people talking?

0 = not applicable e.g. you had no communication problems previously

1 = no improvement

2 = some improvement

3 = moderate improvement

4 = great improvement

5 = communication is now perfect

Any other comments?

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16) Do you feel the hearing service has helped improve your confidence when talking to people?

Yes  No  Not applicable

17) Do you feel the hearing service has helped to reduce any feelings of isolation?

Yes  No  Not applicable

Any other comments?

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18) How much do you feel the hearing service has supported you to manage your hearing?

0 = not applicable e.g. you felt fully supported previously

1 = no support

2 = some support

3 = moderate support

4 = great support

5 = all the support you require

19) How satisfied were you overall with your follow up visit or telephone call?

1= not satisfied at all

2= somewhat dissatisfied

3= neither dissatisfied or satisfied



4= moderately satisfied

5= completely satisfied

Any other comments?

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20) Has your hearing aid(s) enabled you to engage in activities that you were unable to do before?

Yes  No  Not applicable

Any other comments?

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21) How easy do you find it to use the phone?

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What difficulties do you have if any?

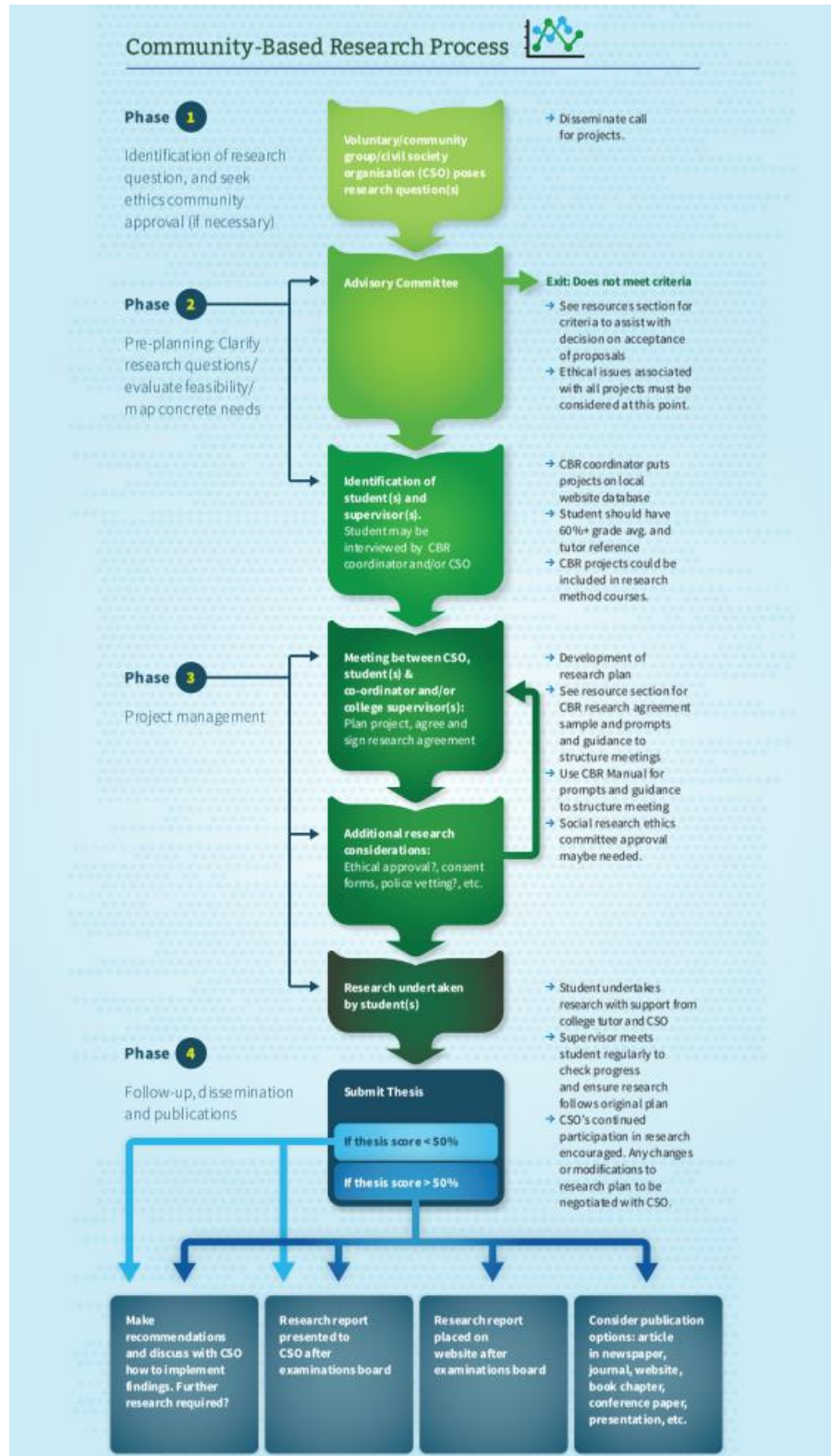
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Appendix - V

Community-based Research Project (CARL) Process



## Appendix – VI

### The Mixed Method Research Design

