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Geriatric Audiology: Clients' perspectives of service delivery in an affluent, urban area in South Africa.

by

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Abstract

Title : Geriatric Audiology: Clients' perspectives of service delivery in an affluent, urban area in South Africa.

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Current research in the field of geriatric audiology focuses on the audiological assessment and management. However there is a lack of published work describing the perspectives of the geriatric individuals with a hearing loss regarding the audiological service delivery received. This study aimed to determine the perspectives of the geriatric individuals with a hearing loss in this regard. Convenience sampling was utilised to recruit 50 geriatric individuals who wore hearing aids, in Gauteng. A two phase methodology was employed in this study. Phase one included a questionnaire aimed to determine the geriatric individuals' perspectives of the audiological assessment and management processes conducted by the audiologist. Phase two, a focus group discussion regarding audiological service delivery, included 7 geriatric individuals who were randomly selected from the 50 geriatric individuals in phase one of the study. Results revealed that geriatric individuals with a hearing loss; perceived the audiological services received as adequate. However the results obtained from the questionnaire indicate that the majority of these geriatric individuals were not provided with a full test battery of assessment and management procedures as required. Therefore South African audiologists need to evaluate the assessment and management procedures used when working with the geriatric population. **Key terms: Geriatric audiology, perspectives, service delivery, hearing loss, hearing aid and focus group discussion.**

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OPSOMMING

Titel : ***Geriatric Audiology: Clients' perspectives of service delivery in an affluent, urban area in South Africa.***

Naam : **Dhanashree Pillay**

Studieleiers : **Dr L Pottas & Me T van der Spuy**

Departement : **Kommunikasiepatologie**

Graad : **M. Kommunikasiepatologie**

Resente navorsing in die veld van geriatriese oudiologie fokus hoofsaaklik op oudiologiese evaluering en behandeling. Daar bestaan egter beperkte literatuur wat geriatriese individue met 'n gehoorverlies se persepsies beskryf oor die proses van evaluering en dienslewering. Gevolglik was die doel van hierdie studie om geriatriese individue met 'n gehoorverlies se persepsies aangaande oudiologiese dienste te bepaal. 'n Twee-fase metodiek is in hierdie studie aangewend. 'n Vraelys is in fase een gebruik om 50 geriatriese individue met 'n gehoorverlies en wat gepas is met gehoorapparate, se persepsies aangaande oudiologiese dienslewering te bepaal. Sewe geriatriese individue het deelgeneem aan die tweede fase, naamlik 'n fokusgroepbespreking aangaande oudiologiese dienslewering. Resultate dui daarop dat geriatriese individue met 'n gehoorverlies die oudiologiese dienste wat hulle ontvang het as voldoende ervaar, Die meerderheid van die geriatriese individue het egter aangedui dat 'n.volledige oudiologiese toetsbattery nie tydens die evaluasieproses uitgevoer is nie en toepaslike gehoorapparaatevaluering- en passingsprosedures nie gevolg is nie. Die implikasies hiervan is dat oudioloë werksaam in Suid-Afrika die evaluering- en behandelingsprosedures wat toegepas word vir die geriatriese populasie, voortdurend moet evalueer en aanpas.

Sleutelwoorde: Oudiologiese dienslewering, fokusgroepbesprekings, gehoorapparate, gehoorverlies, geriatriese oudiologie, persepsies.

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List of Abbreviations

‘South African Speech Language and Hearing Association’: (SASLHA).

‘American Speech-Language-Hearing Association’: (ASHA).

‘Health Professions Council of South Africa’: (HPCSA).

‘UN’ : United Nations.

‘National Institute on Deafness and Other Communication Disorders’:(NIDCD)

‘White Paper on the Transformation of the Public Service’: (WPTPS).

CHAPTER 1

INTRODUCTION AND RATIONALE

In this chapter the background to geriatric hearing loss will be discussed, followed by the rationale for the study. The outline and organisation of chapters in the dissertation is provided. A description and clarification of terminology used in the study will also be included in this chapter. The chapter will conclude with a motivation for research within the field of geriatric audiology.

1.1 INTRODUCTION

Hearing loss can be described as a rapid or gradual decline in the ability to hear clearly depending on the cause. Furthermore, hearing loss can be reversible, temporary or permanent (Healthwise, 2007:1). Although the importance of proper hearing can hardly be overestimated, it has still not been appreciated by the public. Hearing loss can exist from birth to old age, ranging in severity from a mild hearing loss to a profound hearing loss (Sataloff, 1993:5).

1.1.1 Hearing loss

The statements above specify the large variety of individuals that may be affected by hearing impairments. It also emphasises the importance of providing the public with information about hearing protection and prevention. Hearing loss may exist at any age,

but there is evidence that the geriatric population in particular, is drastically affected by it (Sataloff, 1993:5). A common description used is the 'hidden disability or invisible condition' as the hearing loss cannot be physically seen by other individuals (Northern & Downs, 2002:2), although the effects of the hearing loss is not hidden to the geriatric individuals with the hearing loss (Tye-Murray, 2008:2). Hearing loss, the hidden disability, is prevalent in approximately 60-70% of people over the age of 65 years (Hickson & Worrall, 1997:3). The age at which someone is classified as being geriatric varies worldwide, but is typically 60 or 65 years in developing countries (Worrall & Hickson, 2003:5). The geriatric individual with a hearing loss will experience an array of effects that may hinder the lifestyle and well-being of the individual (Carpenito-Moyet, 2007:152). These effects will be described in the following sub-section.

1.1.2 The effects of hearing loss in the geriatric population

The effects of a hearing loss have a drastic impact on the life of the geriatric individual. The geriatric individual with a hearing loss is negatively affected during the everyday exchange of information with others and as a result will endure communication difficulties during their senior years (Dalton, Cruickshanks, Klein, Klein, Wiley & Nondahl, 2003:661). Everyday activities such as shopping, talking on the telephone, taking care of finances and preparing food becomes more difficult due to the decrease in communication based on the hearing loss (Dalton et al, 2003:666). Communication is therefore radically affected when a geriatric individual develops a hearing loss. The overall quality of life[1] of the geriatric individual with a hearing loss is reduced as a result

[1] Quality of life in this research refers to the degree of well-being experienced by the geriatric individual. It is a description of the physical and psychological aspects of the individuals' life. These aspects refer to their health, diet, stress, worry , pleasure and other positive or negative emotional states. Each person

of the decrease in communication. Necessary measures need to be in place to assess and manage the physical and psychosocial effects of hearing loss within the geriatric population.

Common psychosocial effects include shame, guilt, anger, embarrassment, lack of concentration, depression, sadness, frustration, anxiety and low self confidence (Tambs, 2004:776). The psychological and social effects noted above indicate the drastic effects of the hearing loss on the geriatric individual. Consequently these negative effects will reduce the quality of life of the geriatric individual. In addition to the social and practical difficulties, geriatric individuals with a hearing loss experience communication difficulties and this process can lead to changes in comprehension of language, speech and voice resulting in serious implications on the quality of life of the geriatric person (Worrall & Hickson, 2003:8). The geriatric individuals with a hearing loss will therefore have severe difficulty communicating successfully due to the inability to follow conversations (Bess & Humes, 2003:4). Monitoring their speech becomes problematic, causing an overall communication breakdown. Using original compensation strategies may break conventional rules of personal space, which may hamper the geriatric individual's social relationships (Worrall & Hickson, 2003:11). The geriatric individuals' with a hearing loss have to concentrate on trying to determine what is being said, they may have difficulty in thinking beyond the immediate conversation,

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has their own expectations in terms of a good quality of life. It is however evident that any average quality of life is assumed to having all the basic necessities such as food, shelter, safety, as well as freedoms. (Schalock, 1997:5)

resulting in withdrawal. The decline in verbal stimulation accelerates the mental process of aging and the individual goes to meet a 'spiritual death in advance' (Purnell, 1990:1). Therefore the geriatric population with a hearing loss requires appropriate and effective audiological assessment and management.

1.1.3 Audiological services

The geriatric population with a hearing loss will therefore require audiological services to assess, rehabilitate and manage the drastic effects of the hearing loss. The need for diagnostic hearing assessments and intervention is vital to improve the quality of life of the geriatric hearing impaired individual. The audiologist's role is to quantify, diagnose and rehabilitate the geriatric individual affected by a hearing loss (Hof & Mobbs, 2001:640). The audiological services may range from hearing assessments, hearing aid evaluations, hearing aid fittings, hearing aid maintenance and aural rehabilitation.

Regrettably the geriatric population is often under-serviced as they deem it inevitable to loss hearing with age and therefore fail to seek for the necessary management. There is an abundance of geriatric individuals with a hearing loss who do not consider hearing assessments and intervention with the use of hearing aids (Hickson & Worrall, 1997). Therefore the need for awareness of available audiological services and the rehabilitation process is highlighted. Rehabilitation is designed as an intervention strategy to improve communication and to provide support for the geriatric individual with a hearing loss (Tye-Murray, 2008:507). The negative effects of a hearing loss may be minimised during the rehabilitation process directed by the audiologist. A prevalence study was conducted in the United States of America (U.S.A) to determine the number of geriatric individuals with a hearing loss. As depicted in Table 1.1, there are over

twenty two million people in the United States who have a hearing loss. About nine and a half million of these individuals are 65 years of age and older (Bess & Humes, 2003).

Table 1.1: Prevalence and prevalence rates according to age of hearing loss in the United States of America (Adapted from Bess & Humes, 2003).

Age Group	Prevalence	Prevalence rate per 1000
All Ages	22,044,000	83.4
Less than 18 Years	897,000	12.6
18-44 Years	4,522,000	41.9
45-64 Years	6,987,000	131.5
65-74 Years	4,967,000	255.2
75+ Years	4,941,000	369.8

According to these international statistics depicted in Table 1.1, it is evident that hearing loss is significant in the geriatric population. The U.S.A statistics indicates that the geriatric population comprises of approximately 30 percent of the total hearing impaired population. There is a high prevalence rate per 1000 individuals who are over the age of 65 years compared to other age categories. These statistics are however specific to the U.S.A and data describing the current state of the situation in South Africa is lacking. It is noteworthy that international statistics can be reflected upon when researching similar topics within the South African context; however the uniqueness of the South African population must be accommodated. There are approximately 4.5 million adults and children in South Africa with a sensorineural hearing loss (Swanepoel, 2006:264), indicating the magnitude of the population who may have related communication

difficulties. There is however a lack of specific information regarding the statistics and prevalence of geriatric individuals with a hearing loss in South Africa. The South African population with a hearing loss will nonetheless require dedicated audiological services within the country, reiterating the need for the availability of appropriate audiological services.

In 2008 the South African Statistical department released the mid-year population estimates document. The South African department estimated that by mid 2008 there were 48.7 million people living in South Africa. The age ranges were approximated and are tabulated in Table 1.2. The next census in South Africa is scheduled for 2011.

Table: 1.2: Statistical estimates per age in South Africa (2008)

Age	Male	Female	Total
0–19	10 523 700	10 301 800	20 825 500
20–44	8 924 800	9 676 900	18 601 700
45–49	1 009 000	1 231 500	2 240 500
50–54	869 900	1 072 900	1 942 800
55–59	699 700	868 400	1 568 100
60–64	548 200	700 400	1 248 600
65–69	390 000	535 500	925 500
70–74	249 400	387 800	637 200
75–79	138 000	250 200	388 200
80+	92 100	216 800	308 900
Total	**23 444 800**	**25 242 200**	**48 687 000**

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As depicted in Table 1.2, the estimated number of geriatric individuals in South Africa is 2 259 800. The most recent official census in South Africa was the Census 2001. In the section of prevalence of disability in South Africa, it was revealed that 20.1% of the population had hearing related disabilities at that point in time. Table 1.3 illustrates the prevalence of disabilities in the South African population in 2001. According to this census, hearing and communication disabilities account for 26.6% of disabilities.

Table: 1.3: The prevalence of disability in South Africa (Census 2001)

Type of disability	Male	Female	Total
Sight	28.3%	35.6%	32.1%
Hearing	**19.4%**	**20.7%**	**20.1%**
Communication	7.2%	5.8%	6.5%
Physical	30.7%	28.6%	29.6%
Intellectual	13.5%	11.3%	12.4%
Emotional	17.3%	14.3%	15.7%

According to Table 1.3, hearing impairment has the third highest percentage of disabilities in South Africa. Figure 1.1 indicates the percentage of males and females who had hearing and communication disabilities according to the 2001 census. The prevalence of hearing disability amongst females was recorded at a higher percentage than males. This shows a trend of better hearing in the male population at the time of the census in 2001.

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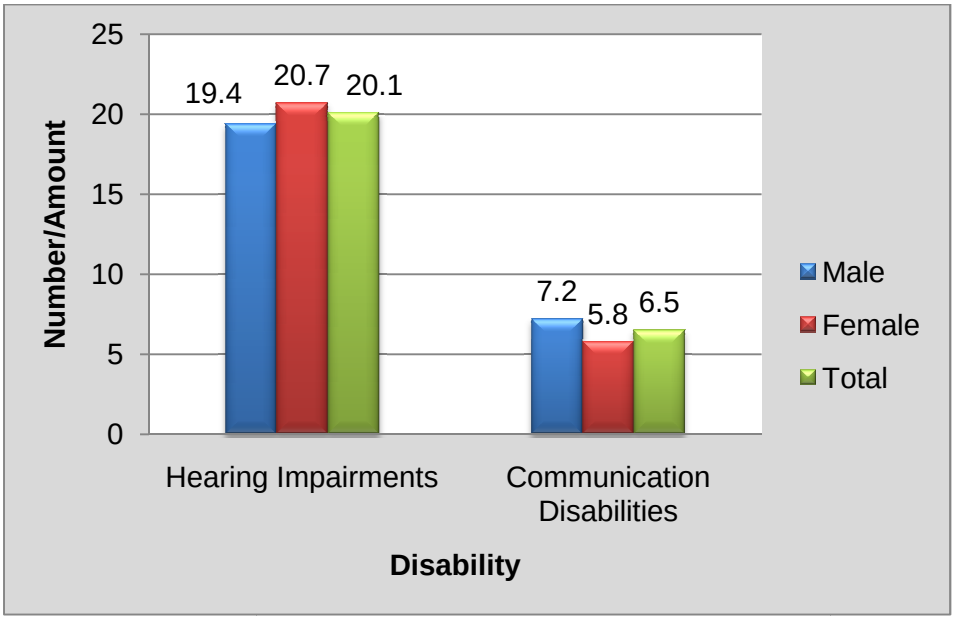

Figure 1.1: Prevalence of hearing and communication disabilities according to gender in South Africa

As illustrated in Figure 1.1, hearing impairments are more prevalent than any other communication disabilities in both males and females. With the increase in medical technology, individuals have a longer life span, resulting in a growing geriatric population (Weinstein, 2000:3). This statement by Weinstein necessitates the urgency to assess and improve audiological services provided to the geriatric population in order to effectively manage this growing population. This matter has been neglected for a long period of time and there is currently a need for audiologists to prepare themselves for the growing geriatric clientele (Weinstein, 2000:3). Due to the emergent larger geriatric population and high prevalence of hearing loss within this population, it is therefore important to review the current audiological service delivery provided to the geriatric hearing impaired population.

1.2 RATIONALE OF RESEACH

There are a large number of research studies available in the field of geriatric audiology, assessment and management. However this research study asks the question:

What are the perspectives of South African geriatric individuals with a hearing loss, regarding the audiological service delivery received?

The rationale for this study is the need for detailed information about the perspectives of South African geriatric individuals with a hearing loss, therefore the answer to the above mentioned question. The ensuing discussion details the areas that are relevant when working with the geriatric population and the specific effects of hearing loss on this population. This discussion provides justification for the rationale of this study.

From the 'womb to the tomb', individuals experience the process of aging. Younger individuals will have different experiences than geriatric individuals. Therefore aging has a significant impact on an individuals' life (Gravell, 1988:1 cited in Ross & Deverell, 2007:182). The younger individual who has a hearing loss may not have the same experiences as the geriatric individual with a hearing loss as life demands and experiences are varied (Alpiner & McCarthy, 2000:41). Geriatric individuals with a hearing loss now have the additional communication difficulty to contend with, thus the impact on communication has negative consequences on the geriatric individual's welfare and lifestyle as the hearing loss requires communication changes when socialising and interacting with others (Beck 2002:170). The younger generation are more versatile and flexible in changing based on circumstance. However, the geriatric individual with a hearing loss is usually set in the ways of life and therefore change and

modification of behaviour could sometimes be difficult for these individuals (Weinstein, 2000:173).

Africa has the highest growth rate of the geriatric population, many of whom live in poverty (Adesida & Oteh, 2004:197). This growing geriatric population is due to the fact that more people are having fewer children and as a result have a longer life expectancy (Adesida & Oteh, 2004:197). In general, the geriatric individuals face many challenges which include hearing impairments, hypertension, visual difficulties, osteoarthritis, chronic respiratory disorders and mood disorders (Tye-Murray, 2008:497). Geriatric individuals with a hearing loss have additional psychosocial effects due to the hearing loss (Weinstein, 2000:183). Therefore the geriatric population with a hearing loss experience social and practical difficulties beyond the experiences of non hearing impaired geriatrics. The additional social effects may include social withdrawal, personality changes, decrease in conversation, lack of attentiveness, loss of intimacy, problems at work and sexual difficulties (Tambs, 2004:776).

The communication difficulty may also lead to frustration, dependency and isolation of the geriatric individual with a hearing loss (Hanratty & Lawlor, 2000:512). Communication is therefore fundamental to the geriatric individuals' quality of life (Worrall and Hickson, 2003:12). This essentiality of communication is depicted in Figure 1.2.

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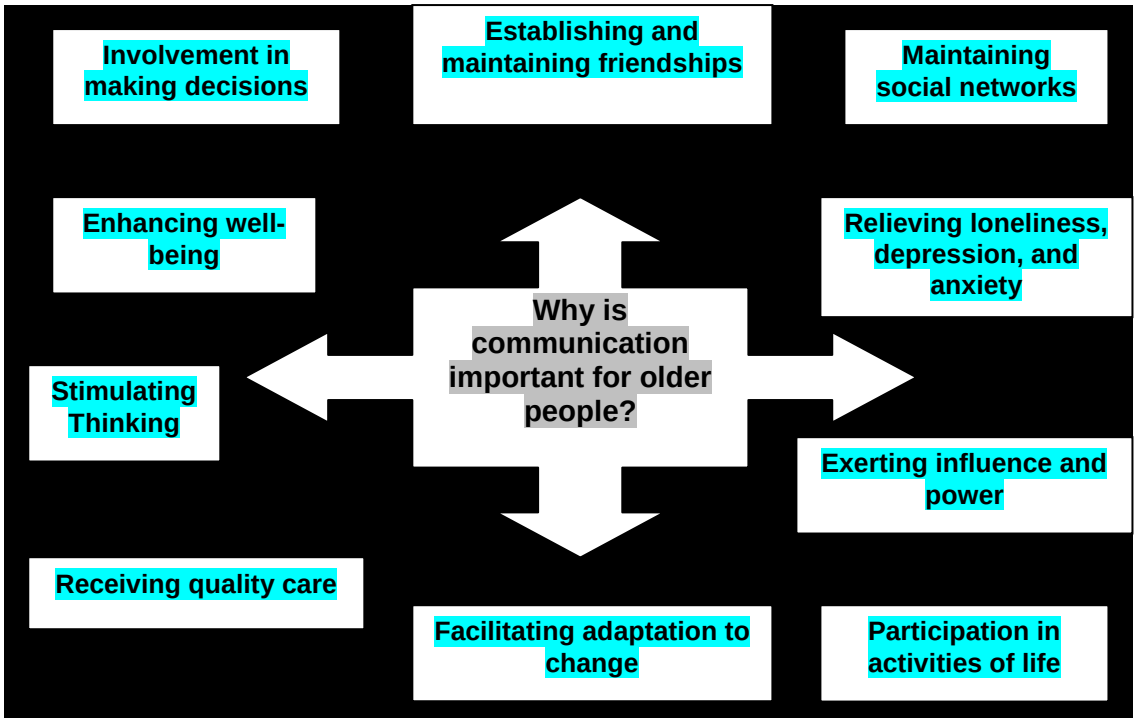

Figure 1.2: The importance of effective communication for geriatric people.

[Adapted from Lubinski (1995, 1997) cited in Worrall & Hickson (2003)]

According to Figure 1.2, an effective communication system is vital to the geriatric individual. The ten areas outlined in Figure 1.2 are necessary to obtain effective communication. When analysing Figure 1.2 it can be deduced that the geriatric individual with a hearing loss requires adequate and effective communication to establish friendships and relationships to maintain his/her present social lifestyles.

Therefore it is noted that the hearing loss causes a decrease in the geriatric individual's communication which in turn leads to a decrease in the quality of life. These direct circumstances occur in addition to the natural processes of aging. However, there is relief for those who seek audiological management. Hearing loss has been one of the most taxing problems that the medical world has been confronted with due to the

immense impact on the geriatric individuals' personality and quality of life (Sataloff, 1993:23).

The role of the audiologist becomes important when working with the geriatric individual with a hearing loss. The audiologists have an obligation to provide the geriatric individual with a hearing loss, with professional services at a highly competent level (Shipley & McAfee, 2008:14). The geriatric individual with a hearing loss requires a structured plan for assessment and management of the hearing loss (Hull, 1995:90). To ensure that the geriatric individual with a hearing loss obtains the appropriate audiological services, a list of hearing assessment and management guidelines are available from the governing bodies of the profession such as the 'South African Speech Language and Hearing Association'(SASLHA), the 'American Speech-Language-Hearing Association' (ASHA) and the 'Health Professions Council of South Africa' (HPCSA). Sufficient time is required to assess the hearing, interpret the results and manage the hearing loss. It is the role and responsibility of the audiologist, to ensure that the geriatric individual with a hearing loss is assessed and managed appropriately, as outlined in Figure 1.3.

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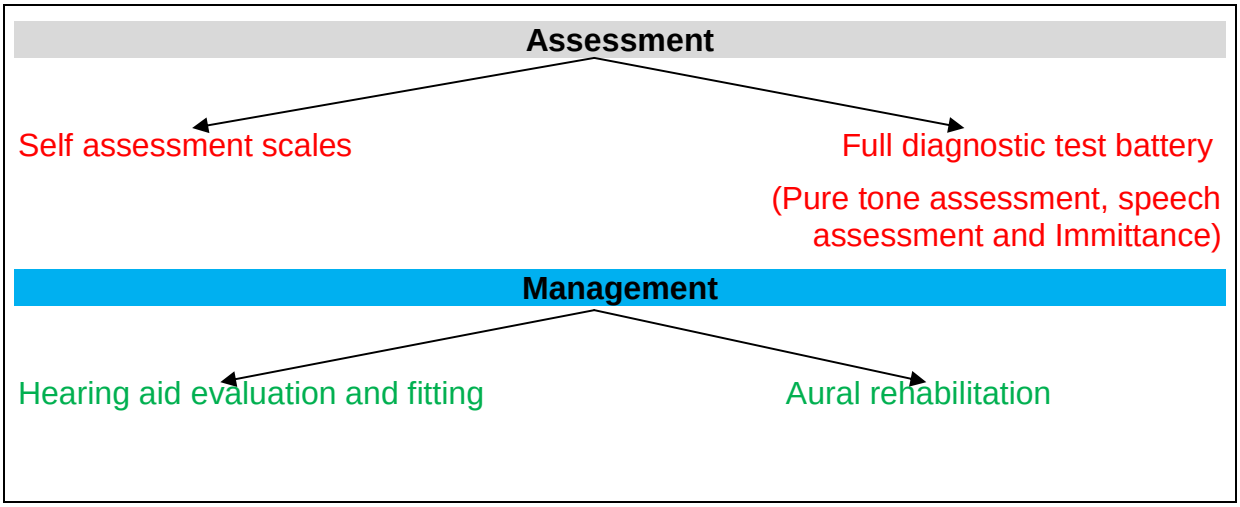

Figure 1.3: Audiologists role when assessing a geriatric individual

As depicted in Figure 1.3, initially it is recommended that the audiologist incorporates self assessment scales when assessing the geriatric individual (Weinstein, 2000:270). These scales will provide an indication of the social and emotional issues affecting the geriatric individual with a hearing loss. Thereafter the audiologist conducts the diagnostic hearing assessment battery, to establish the type, severity and configuration of the hearing loss (Roeser, Valente & Hosford-Dunn, 2000:227). When the nature of the hearing is determined by the audiologist, the intervention plan is discussed with the geriatric individual. Hearing aids are usually the only form of intervention for the geriatric individual with a hearing loss (Weinstein, 2000:209) and often there are no other options available to improve hearing and communication.

The geriatric individual with a hearing loss should understand the process of aging and hearing impairment before the hearing aid evaluation and fitting (Weinstein, 2000:209). The audiologist will conduct the hearing aid evaluations, providing the geriatric individual with the opportunity to discuss different hearing aid options available (Purdy,

2001:1). Technological development is dynamic and there are a variety of hearing aids available for the geriatric individual with a hearing loss; however the hearing aids and counselling form part of the intervention process to decrease the effects of a hearing loss (Hanratty & Lawlor, 2000:512; Erber, Lamb & Lind, 1996:17). It is the responsibility of the audiologist to ensure that his/her knowledge is updated on a regular basis in order to provide the geriatric individual with relevant counselling information (Ross & Beck, 2001:1). Incorrect information provided to the geriatric individual may however lead to failure to seek intervention.

The geriatric individual with a hearing loss is often told by the physician that the hearing loss is expected and nothing can be done to remediate it (Worrall & Hickson, 2003:27). This validates the decline in the use of hearing aids among this population despite the availability of various options to remediate a hearing loss and improve communication and a person's quality of life. The hearing geriatric individual with a hearing loss could seek help from a doctor, hospital or clinic, until the appropriate referral is made to an audiologist. If the geriatric individual eventually seeks help there is often a significant handicap as the individual may report problems going back for years (Weinstein, 2000:182). This occurs as the geriatric individual becomes discouraged about the hearing impairment (Weinstein, 2000:182). These factors affect the rehabilitation process as the geriatric individual requires additional counselling and support throughout the rehabilitation process. It is evident from the above discussion that the hearing assessment and intervention is unique for the geriatric individual with a hearing loss.

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This group of individuals have specific challenges and experiences and it is therefore necessary to determine the perspectives of these individuals. Research in South Africa is however minimal with regards to the opinions and beliefs of the geriatric hearing aid user. Therefore knowledge about the geriatric individual and the aging process will assist in the assessment and management of this population (Ross & Deverell, 2007:186). The geriatric population encompasses the majority of the hearing impaired population and their opinions and feelings will assist in assessing and possibly restructuring the audiological service delivery provided to this population.

The dearth of information regarding the perspectives of the geriatric individual with a hearing loss, in South Africa, emphasises the need for research within this population. The rapid growth of geriatric people together with the high incidence of hearing impairment within this population motivates for research within this area. This will aid in the identification of problem areas and it may support the improvement in service delivery provided to this particular population. Therefore, this study was conducted to establish the perspectives of geriatric individuals with a hearing loss regarding the audiological service delivery received.

1.3 DIVISION OF CHAPTERS

This research study focuses on determining the perspectives of the geriatric individuals with a hearing loss in terms of the service delivery they received from the audiologist. Table 1.4 outlines the chapters of this study and provide a summary of each chapter.

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Table 1.4: Outline of chapters in the present study.

Chapters	Area	Description of the sub-areas	Motivation for the chapter
Chapter 1 Introduction	1.1 Introduction	➢ Hearing loss. ➢ Introduction to the effects of hearing loss in the geriatric population. ➢ Audiological services	In this chapter the reader is initially orientated to the background areas on which the study was based. The relevance of this study is described in the rationale. This chapter provides the reader with an overview for the chapters used in the study. Concepts and terminology is provided to ensure understanding.
	1.2 Rationale of the study	➢ Psychosocial effects of hearing loss on the geriatric client. ➢ Communication ➢ Audiology services available for the geriatric client: role and responsibility of the audiologist. ➢ Introduction to hearing aids.	
	1.3 Division of chapters	➢ Chapters of the current research study are outlined.	
	1.4 Terminology utilised	➢ Terminology used is defined.	
Chapter 2 Literature review	2.1 Introduction 2.2 Hearing loss in the geriatric	➢ Defining the geriatric individual ➢ Causes of hearing loss in the	This chapter provides a review and a critical discussion of the theoretical foundation of geriatric audiology. Assessment, diagnosis and intervention

	population. 2.3 Role and responsibility of the audiologist 2.4 Assessment and diagnosis of hearing loss in the geriatric population 2.5 Service delivery: The South African context 2.6 Summary	geriatric population ➢ Effects and implications of hearing loss in the geriatric population ➢ The need for a comprehensive test battery ➢ Assessment and diagnosis ➢ Intervention: Amplification ➢ Intervention: Aural rehabilitation ➢ Audiologists view of service deliver in South Africa	of hearing loss in this population are highlighted. This chapter provides the reader with the audiologist view of service delivery in South Africa.
Chapter 3 Methodology	3.1 Introduction 3.2 Research aims 3.3 Research	➢ Main aim ➢ Sub-aims	In this chapter the reader is provided with the logical flow if the undertaking of this study. The main aim and sub-aims are described. The chapter includes the research designed used and the ethical aspects considered. Phase one and two of the study are

	design 3.4 Ethical aspects 3.5 Research phases 3.6 Phase one 3.7 Phase two 3.8 Summary	➢ Autonomy ➢ Privacy and confidentiality ➢ Informed consent ➢ Subjects ➢ Research material ➢ Pilot study ➢ Data collection procedures ➢ Data analysis ➢ Validity and reliability ➢ Purpose and motivation ➢ Participants ➢ Research material ➢ Pilot study ➢ Data collection procedures ➢ Data analysis ➢ Credibility and transferability	described in detail.
Chapter 4 Results and discussion	4.1 Introduction 4.2 Research		This chapter provides a discussion of the results obtained in this study. Tables and figures are used to illustrate the results. Phase one is discussed

	aims Phase one Phase two	 ➢ Sub-aim one ➢ Sub-aim two ➢ Sub-aim three ➢ Sub-aim four ➢ Sub-aim five	using the sub-aims of the study. Phase two provides the reader with themes that were identified during the focus group discussion. The chapter will aim to provide the reader with answers to the research question of this study.
Chapter 5 Conclusion	5.1 Conclusion 5.2 Implications 5.3 Future research	➢ Test procedures covered ➢ Extent of hearing aid information provided ➢ Extent of counselling and aural rehabilitation provided ➢ Focus group discussion	The conclusions made from the results obtained are presented in this chapter. The chapter provides the reader with critical strengths and limitations of this study. The need for further research is presented and discussed.

1.4 TERMINOLOGY UTILISED

The following terminology is explained as they are used frequently in this research study:

- **Audiologist**

A licensed health care professional who has a degree in audiology and is a specialist in testing hearing and in other areas of hearing services including hearing aid evaluation, cochlear implant evaluation and recommendations for follow-up services. (Valente, Hosford-Dunn & Roeser, 2000:310)

ASHA (2004:5). Scope of practice in audiology. Available from

www.asha.org/policy

- **Hearing Aid**

A device that amplifies sound and directs it into the ear. A hearing aid consists of a microphone, an amplifier and a receiver. Sound usually enters the ear through an ear mould worn in the ear. The different styles may include behind-the-ear hearing aids, in-the-ear hearing aids and completely in-the-canal hearing aids.

(Dillion, 2001:12)

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- **Degree of hearing Loss**

A term used to describe a level of hearing less than that typically heard by the general population. The range of hearing loss is characterised as shown below. The range of numbers attached to the specific word labels may vary vaguely depending on the reference used.

Hearing classification according to (Sataloff, 1993:49)

Description	Decibel Range
• Normal Hearing	o dB to 15 dB
• Mild Loss	16 dB to 35 dB
• Moderate Loss	36 dB to 50 dB
• Moderate/Severe Loss	51 dB to 70 dB
• Severe Loss	71 dB to 90 dB
• Profound Loss	91 dB or more

Normal hearing is described as hearing sensitivity of 25dB or below. The pure tone average (PTA) of a hearing loss is calculated by added the thresholds at 500Hz, 1000Hz and 2000Hz then dividing the sum by 3.

- **Hearing Impaired**

For the purpose of this study a hearing impaired person is referring to the geriatric person whose hearing is less than the normal range. This person

is hears sounds differently when compared to a person with hearing within normal limits. (Long, Phipps & Cassmeyer, 1995:959)

- **Sensorineural origin/hearing loss**

This permanent and irreversible hearing loss is caused by damage or degeneration that occurs in the cochlea and/or nerve pathway to the brain (Balch, 2000:460).

1.5 SUMMARY OF CHAPTER

This chapter provided a description of the key concepts linked to geriatric audiology. The prevalence of hearing loss is discussed in accordance to the rationale of the study. The research question is provided and the rationale of this study is emphasised. Terminology utilised in the study is listed and explained.

CHAPTER 2

LITERTURE REVIEW

The aim of this chapter is to present relevant supporting literature that provides information regarding geriatric hearing loss, as well as the causes and effects of the hearing loss. The role of the audiologist and service delivery in South Africa are also critically discussed.

2.1 INTRODUCTION

The process of aging is inevitable and by the year 2050 there will be two geriatric individuals for every child (UN Population Division, 2006:8). The rapidly growing geriatric population is the root of future age imbalances, causing a burden on society as a large portion of finances will be utilised when taking care of this population. The geriatric population worldwide is growing and characteristically presents with insecurity, loneliness, isolation, neglect, decrease in family support, poor finances, physical and mental difficulties and also the guilt of being dependant (UN Population Division, 2006:8).

Hearing loss is one of the most common chronic conditions experienced by the geriatric population. Hearing loss specifically in the high frequencies is particularly prevalent in this population (Bess & Humes, 2003:179). Proficient

and sustainable service delivery to the geriatric population is therefore critical.

The ensuing literature review will be discussed as per Figure 2.1.

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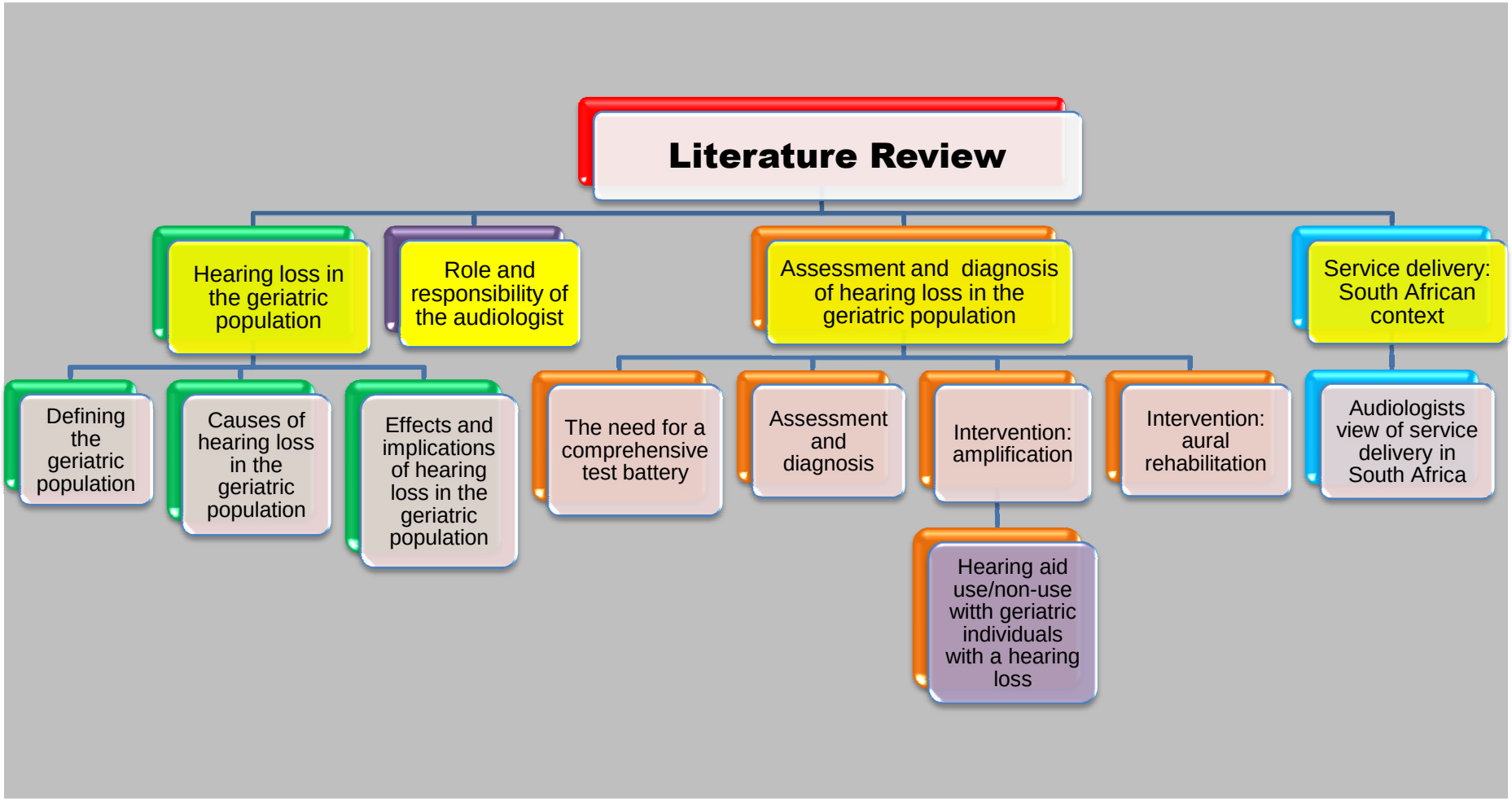

Figure 2.1: Outline of the ensuing chapter

2.2 HEARING LOSS IN THE GERIATRIC POPULATION

2.2.1 Defining the geriatric population

The geriatric population can be defined as individuals who are 65 years of age and older (Ross & Deverell, 2007:181). There are numerous biological theories that describe the reasons for the aging process. Some of these theories include genetic, metabolic, autoimmune and endocrine explanations. The most prominent explanation for aging is that of cell death and degeneration of the body (Kennedy, 2000:3). The aging process causes the deterioration of an individuals' sense of taste, smell, peripheral vision and hearing (Kennedy, 2000:3). There are various physiological, cognitive, psychological and social facts such as arthritis and dementia, which are also common amongst the geriatric aging population (Alpiner & McCarthy, 2000:404). However hearing loss has a devastating impact on the geriatric individual and his lifestyle (Gallo, 2006:447). Hearing loss affects nearly one-third of 65 year olds, almost two-thirds of geriatrics over the age of 70 and three-fourths of geriatrics who are 80 years and older (Cress, 2007:55). Since the occurrence of hearing loss in the geriatric population is so significant, the causes and effects of hearing loss will be discussed in the ensuing sub-sections.

2.2.2 Causes of hearing loss in the geriatric population

There is a combination of attributing factors that lead to a decline in hearing in geriatric individuals (Weinstein, 2000:63). These causes include otosclerosis[2], trauma, congenital[3] disorders, ototoxicity[4] and most predominantly presbycusis. Presbycusis is a term used to describe the insidious, progressive, bilateral and symmetrical impairment of hearing, of sensorineural origin which is associated with increasing age (Weinstein, 2000:63). Structural changes in the inner ear are most contributory to this. The primary structures which change and directly affect hearing are the hair cells of the cochlea. These hair cells may degenerate due to age. The basic fundamental design of how the ear works indicates that sound is detected by the ear and then sent to the brain. In more detail, in the inner ear however there is a structure called the cochlea. Inside the cochlea is the coiled structure of the Organ of Corti,

[2] A pathology within the middle ear, caused by an abnormal growth of bone in the middle ear, which prevents middle ear structures from working properly, resulting in a gradual loss of hearing (Jafek & Murrow, 2004:34).

[3] A condition that is present at birth. The person will present with the pathology or disorder when they are born.

[4] This term refers to the harmful effect that certain drugs have on the organs or nerves in the ear, which can lead to hearing and balance problems (Michael & Hellquist, 2001:96).

which contains the cells liable for hearing, namely 'hair cells' (Shepard 2001:408). The inner hair cells and outer hair cells make up the two groups of hair cells. These cells have stereocilia that are in contact with the tectorial membrane. In the cochlea, sound waves cause vibrations, which in turn cause the stereocilia to sway back and forth. The movement allows for the hair cells to create electrical signals. The auditory nerve fibres rest below the hair cells and pass these electrical signals on to the brain. (Shepard 2001:408)

It is therefore paramount that the audiologist is knowledgeable about presbycusis and the aging process, in order to effectively convey information to geriatric individuals in order to provide them with a clear understanding of the possible cause of the hearing loss.

2.2.3 Effects and implications of hearing loss in the geriatric population

The geriatric individual may be impacted socially and emotionally by the cause and effect of the hearing loss. This hinders the intervention[5] process and the individual may become socially withdrawn (Beck, 2002:170). Conversation and communication are vital aspects of the hearing impaired individuals' daily life and it is necessary for this to be as effortless as possible. Quality of life and communication seem to be directly proportional to each

[5] A care provided to improve a situation. There could be a form of therapy, medical help or surgery. In the current study the term refers to the process of intervention with the use of hearing aids.

other when considering the geriatric population (Worrall & Hickson, 2003:177). When there is a breakdown in communication, the person affected may become isolated, depressed[6] or angry[7]. Researching and analysing data obtained from geriatric individuals with a hearing loss, will provide an insight to the special requirements of this population.

The geriatric individual often requires a drastic change in lifestyle based on their health status. Some of these changes include diet, social activities and also vocation. In addition to these inevitable changes the geriatric individual with a hearing loss has additional difficulties to deal with. The geriatric individual with a hearing loss could experience communication problems, dysfluency[8], misinterpretation of conversation and even embarrassment (Weinstein, 2000:600). Consequently a hearing loss has a significant impact on family relationships. Particularly in a marriage, the spousal relationship could be negatively affected as communication decreases (Palmer & Ortmann, 2006:60, in Calhoun & Eibling, 2006:60).

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[6] Describes a person who is severely despondent and unhappy.

[7] An emotion experienced by a person towards someone or something perceived to be the source of an aversive event (Schiraldi, 2000:3).

[8] A clinical term used when a person stutters or has difficulty producing intelligible utterances (ASHA, 1999:4).

It is the responsibility of the audiologist to assess and manage the radical effects of the hearing loss on the geriatric individual and his/her lifestyle (Valente, Hosford-Dunn & Roeser, 2000:535). This could be achieved by providing an effective intervention program to the geriatric individual in order to deal with the associated complexities of geriatric hearing impairments (Roeser, Valente & Hosford-Dunn, 2000:618).

2.3 ROLE AND RESPONSIBILITY OF THE AUDIOLOGIST

Audiology is described as "a discipline involved in the prevention, identification, and evaluation of hearing disorders, the selection and evaluation of hearing aids, and the habilitation/rehabilitation of individuals with hearing impairment" (Bess & Humes, 2003:4). It is noted from this definition, that there is a large population, hearing and hearing impaired individuals that require the services of an audiologist.

The South African Speech Language and Hearing Association (SASLHA) is the profession body for speech pathologists and audiologist in South Africa. This body provides assistance to speech pathologists and audiologists in the country. SASLHA's ethics and standards committee have drawn up strict guidelines for the scope of practices of professionals working in South Africa. As per the S.A Government Gazette R 2672 – 1992-09-25, the "Regulations Defining the Scope of the Professions of Speech Therapy and Audiology" audiologists working in S.A must adhere to the following guidelines for the scope of practice when assessing and managing the geriatric individual with a hearing loss:

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- Audiologists should evaluate and determine the range, nature and degree of the geriatric individual's hearing status in relation to their auditory efficiency and communication needs. Evaluation should include observation and the use of audiology instrumentation.
- The audiologist is responsible for the initial planning and conducting of the habilitation and/or rehabilitation of the geriatric individuals with hearing pathologies, including the fitting and use of hearing aids, speech reading, signing systems, auditory training, counselling and guidance associated to the hearing loss and to hearing conservation programmes.

According to the above guidelines, audiologists are accountable for the assessment and management of the hearing loss, as well as the management of the non-medical aspects of the hearing loss. The role of the audiologist is specific when related to the geriatric population. The audiologist should initially assist the geriatric individual by understanding the nature, repercussion and remediation of the hearing loss (Palmer & Ortmann, 2006:60, in Calhoun & Eibling, 2006). The geriatric individual must be viewed holistically, considering all aspects of life however there are many pertinent factors that may impede on the individual's satisfaction with the rehabilitation process with hearing aid. Audiologists have an important role in identifying those who would benefit from a hearing aid and also emphasise the value of it (Johnson, Benson & Seaton, 1997:20).

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The audiologist must ascertain the individual's motivation to seek audiological assistance. This is essential, since an increase in motivation will result in a more favourable situation. Fook, (1999:537) states that there are various benefits associated with the use of hearing aids and some of these include; the improvement in communication function, the reduction in psychosocial effects of hearing loss, the increase in social participation, the improvement in quality of life measures when the individual was enthusiastic and the fitting was successful. The geriatric individual with a hearing loss who wore the hearing aids and attended aural rehabilitation had improvement in speech reading and other communication strategies (Tye-Murray, 2008:7). The geriatric individuals who wore hearing aids also reported improved emotional status (Kirkwood & Austad, 2000:244). Therefore the role of the audiologist as a 'counsellor' is highlighted, ensuring that the geriatric individual with the hearing loss is provided with aural rehabilitation after the hearing aid fitting.

It is thus necessary for the audiologist to have guidelines for the assessment and management of hearing loss in the geriatric population. The geriatric hearing impaired individual should be provided with services that encompass the persons' needs and lifestyle.

2.4 ASSESSMENT AND DIAGNOSIS OF HEARING LOSS IN THE GERIATRIC POPULATION

2.4.1 The need for a comprehensive test battery

The assessment and management of the geriatric population must include a comprehensive assessment which considers the social, emotional, environmental and medical factors affecting the geriatric individual with a hearing loss (Blazer & Steffens, 2009:58). A comprehensive geriatric assessment is required to ensure that the management procedures are functional for the specific geriatric individual with a hearing loss (Kennedy, 2000:6). The comprehensive assessment and management of a geriatric individual with a hearing loss usually combines the expertise of an audiologist, a speech language pathologist, a medical doctor or neurologist and the geriatric individual's immediate family members (Osterweil, Brummel-Smith & Beck, 2000:670; Gallo, 2006:410). Since the geriatric individual with a hearing loss may have physiological, cognitive, psychological and social facts that decrease the quality of life of this individual (Alpiner & McCarthy, 2000:404), a comprehensive, in-depth hearing assessment and comprehensive management procedure is required. The comprehensive assessment procedures included in the pure tone audiometry, bone conduction audiometry, immittance audiometry and most significantly speech audiometry tests.

Subsequently the recommended assessment and management procedures to be conducted by the audiologist are discussed.

2.4.2 Assessment and diagnosis

An in depth audiological assessment is outlined by the American Speech and Hearing Association (1998). This outline can be used as a blueprint for assessment of the geriatric individual. As a guideline, five steps to follow when conducting an assessment of a geriatric hearing impaired individual are described (ASHA, 1998). Each step consists of distinctive measures that should be used during the assessment, as depicted in Table 2.1.

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Table 2.1: Assessment and intervention steps used

Steps	Area	Definition	Motivation for inclusion
1 The initial assessment	Case history	Verbal case history: Case history sessions provide the audiologist with valuable information regarding the biographical details, medical history, social history, emotional aspects and past and present hearing history of the geriatric indivudal with a hearing loss. (Bess & Humes, 2003:98)	The researcher was required to determine if case history was conducted on the participants in the study as important information about the participant and the auditory status is obtained by conducted a case history session (Gelfand 2009:158).
		Questionnaires: Apart from the aspects included in the verbal case history session, the audiologist may also include case history questionnaires and self evaluation questionnaires to obtain additional information about the social and emotional aspects of the geriatric individual's life. (Worrall & Hickson, 2003:147).	The researcher sought to determine if a questionnaire was provided to the participant to assess the impact of the hearing loss on the participant's life (Gelfand, 2009:445).
	Otoscopic examination	This is a visual exam of the ear. There is an inspection on the pinna, the ear canal and the tympanic membrane. (Kemp & Lockey, 2000:249)	The researcher wanted to determine if the audiologist assessed the participants' outer ears and middle ears for any abnormalities, during the hearing assessment session (Roeser, Hosford-Dunn & Valente, 2000:280).
	Immittance measures	Immittance measurements are utilised to determine the mobility of the middle ear when there are changes in the air pressure of the external ear. Immittance audiometry comprises of tympanometry and acoustic reflexes. Middle	The researcher was required to determine if the participants ere assessed for middle ear pathologies and conductive components using immittance measures (Stach, 1998:258).

		ear diseases will generally be detected by an abnormal immittance measures (Hall & Chandler, 1994:293)	
	Pure tone audiometry	Pure tone audiometry is a vital aspect in the assessment of hearing in the geriatric population. Pure tone audiometry assists the audiologist in determining the type, severity and configuration of the hearing loss. (Bess and Humes, 2003:119)	The researcher wanted to identify if the audiologist used the 'gold standard' pure tone assessment measurement to determine the type, severity and configuration of the participants' hearing loss (Roeser, Hosford-Dunn & Valente, 2000:238).
	Speech audiometry	Speech audiometry enables the audiologist to determine the extent of the hearing loss on the geriatric individual's communication ability. The speech reception threshold test and the speech discrimination tests assess the effects of hearing loss on speech utterances. Thus allowing the audiologist to determine the impact of the hearing loss on the geriatric client. (Bess and Humes, 2003:119)	The researcher wanted to determine if speech audiometry was conducted on the geriatric individuals' with a hearing loss, to assess the effects of the hearing loss of speech stimulus, simulated conversational environments (Gelfand, 2009:241).
2 **Intervention**	The treatment planning session	A treatment plan is formed by the audiologist and the geriatric individual with a hearing loss. A discussion regarding the management options, hearing aid candidacy and benefits of different hearing aids is recommended during the development of a treatment plan. Amplification should be an important discussion point as this will depend on the hearing loss, finances, communication needs and lifestyle. (Bess & Humes, 2003:226)	The researcher wanted to determine is a treatment plan was designed and implemented when managing the participant (Roeser, Hosford-Dunn & Valente, 2000:236).
	Hearing aid	The hearing aid selection process is a process	The researcher wanted to determine if the

	selection process	between the geriatric individual with a hearing loss and the audiologist. The areas to be discussed are hearing aid style, hearing aid technology, cost of hearing aids and the geriatric individual's lifestyle and preferences. (Valente, Hosford-Dunn & Roeser, 2000:248)	participant was provided with a discussion regarding hearing amplification devices and needs thereof that are available (Dillon, 2001:289)
	Hearing aid verification process	The term verification in audiology refers to formal test procedures that are used to obtain validity of the hearing aid fitting. These procedures include subjective verification from the geriatric individual or real-ear measures such as insertion gain, which are objective measures performed on audiological equipment (Valente, Hosford-Dunn & Roeser, 2008:85). The use of the verification process provides a confirmation for the selection and fitting of the geriatric individuals hearing aids. (Scollie & Seewald, 2002:698)	The research was required to determine which verification measure was performed during the hearing aid fitting session (Sandlin, 2000:123). The verification process is extremely important when fitting a geriatric individual with a hearing aid as it contributes to the individual's satisfaction with the hearing aid (Ackley & Limb, 2007:271).

According to Table 2.1 the geriatric individual requires a comprehensive assessment utilising five audiometric procedures. This is the initial stage of assessing the geriatric hearing impaired individual.

The first step in the initial assessment is the case history. This provides information regarding biographical details, medical history, social history, emotional aspects and past and present hearing history of the geriatric individual with a hearing loss (Bess & Humes, 2003:98). The assessment commences with the audiologist using techniques to elicit self-motivational statements from the geriatric individual with a hearing loss (Miller & Rollnick, 2002:23). The communication at this point, between the audiologist and the geriatric individual during case history is the start of the assessment procedure. The statements obtained will form the basis of the assessment procedure as depicted in Table 2.2.

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Table 2.2: Miller and Rollnick's (2002:23) four categories of case history questions

Categories	*Possible questions*
1 Problem Recognition	"Why did you believe you had a hearing loss prior to coming here?"
	"What difficulties have you had in relation to your hearing loss?
	"In what ways do you think you, or other people have been affected by your hearing loss?"
	"How has your hearing loss stopped you from doing what you want to do?"
2 Concern	"What worries you about your hearing loss? What can you imagine happening to you?"
	"How do you feel about your hearing loss?"
	"How much does that concern you?"
	"What do you think will happen if you don't get hearing aids?"
3 Stated intention to change	"What makes you think that you may need to get hearing aids?"
	"If you were 100% successful and things worked out exactly as you would like, what would be different?"
	"Do you remember a time when your hearing was better?"
	"What has changed?"
	"How has your hearing loss stopped you from moving forward?
	'"What's most important in your life?"
4 Degree of self-efficacy to change	"What encourages you that you can get hearing aids if you want to?"
	"What might stand in your way of getting hearing aids?"
	"What are the options for you now? What could you do?"
	"What would be the best results you could imagine if you got hearing aids?"

As depicted in Table2.2, the answers to the questions asked in the case history will provide the audiologist with a framework for hearing assessment session. It gives the audiologist insight about the specific geriatric individuals' thoughts and feelings. This session also establishes a relationship between the geriatric individual with a hearing

loss and the audiologist. The audiologist can use the information provided during the case history session to form an idea of the expected audiological results. Apart from the aspects included in the initial assessment, the audiologist may also include case history questionnaires and self evaluation questionnaires. The use of additional questionnaires will proved the audiologist with relevant information about social and emotional aspects that affect the geriatric individual with a hearing loss (Weinstein, 2000:184).

ASHA (1990) indicates that the otoscopy is essential in the identification of ear canal abnormalities, structural defects and obstructions. It is recommended that during otoscopy, pressure should be exerted on the cartilaginous portion of the ear near the opening to observe for collapsed ear canals as this is highly prevalent among the geriatric population (Bess and Humes, 2003:119). If collapsed ear canals go undetected it will lead to misdiagnosis of a hearing loss. Otoscopic examinations are also vital when assessing the geriatric individual with a hearing loss as impacted wax is a common characteristic in this population (Ratnaike, 2002:244).

Immittance measurements is utilised to determine the mobility of the middle ear when there are changes in the air pressure of the external ear. Middle ear diseases will generally be detected by an abnormal tympanometric pattern (Hall & Chandler, 1994:293). Acoustic reflexes are useful in differentiating whether a sensorineural hearing loss is due to a lesion in the inner ear or to one in the auditory nerve (Bess & Humes, 2003:132). Immittance audiometry will ensure the detection of otosclerosis, ossicular discontinuity, otitis media and other middle ear pathologies that are common amongst geriatric individuals with a hearing loss (Chernoff, 2006:136).

Pure tone audiometry is fundamental in the evaluation of hearing in the geriatric population and in the rehabilitation planning (Bess and Humes, 2003:119). It assists in determining the degree, severity and configuration of the geriatric hearing loss. The results obtained from the pure tone audiometry test will used to classify the extent of the geriatric hearing loss (Valente, Hosford-Dunn & Roeser, 2007:256). The classification of a hearing loss is more meaningful when taking into consideration the effects of the hearing loss on hearing speech sounds and communication.

Human communication and relationships rely directly on the speech utterances therefore the use of speech audiometry will provide the audiologist with direct information relating to the geriatric individuals ability to hear and understand speech (Gelfand, 2009:239). The evaluation of the effects of the hearing loss on the geriatric individual with a hearing loss included the assessment of speech reception thresholds (SRT) test and the speech discrimination test (SDT) (Valente et. al., 2007:289). According to Bess and Humes (2003:119) speech tests are important as it enables the audiologist:

- To determine the extent of the hearing loss on the geriatric individual's communication ability.
- To determine if there is speech recognition.
- To determine if there candidacy for hearing aids.

2.4.3 Intervention: Amplification

The intervention process commences with the development of a treatment plan for the specific geriatric individual with a hearing loss. Based on the findings of the initial assessment, the geriatric individual and the audiologist will consider what treatment

plan is suitable for the individual. The options available to the particular person will be outlined and discussed. Some of these options may include amplification, communication strategies or medical referrals.

When the geriatric individual with a hearing loss chooses amplification as the best option from the treatment plan discussed between the audiologist and the individual, the hearing aid selection process starts. Appropriate hearing aids are then selected for the individual with the hearing loss. There should be a discussion between the audiologist and the geriatric individual with a hearing loss, regarding the candidacy and benefits of different hearing aids. Bess and Humes (2003:226) recommends that monaural[9] verses binaural[10] amplification should be an important discussion point as this will depend on the hearing loss, finances, communication needs and lifestyle of the geriatric individual with a hearing loss. The following areas are outline for discussion for hearing aid candidacy: the type of microphone, the ear mould type, the type technology and the size of the unit and dials (Bess & Humes, 2003:226).

[9] Sounds are only presented to one ear. The listener will use one of his/her ears to hear the sounds. The geriatric individual may be fitted monaurally, thus with a single hearing aid. (Gelfand, 2001:446)

[10] This situation includes the use of two ears. The listener uses both ears to listen to the sound. The geriatric individual may be fitted binaurally, thus with two hearing aids. (Gelfand, 2001:446)

These areas should be considered depending on the manual dexterity[11] and lifestyle of the geriatric individual.

Thereafter the hearing aid verification and validation is conducted in the penultimate stage of the process of intervention. The geriatric individual with a hearing loss is required to actively select the most suitable hearing aids based on appearance, technology, lifestyle and finances. The verification and validation procedures will assist the audiologist in determining the benefit of the hearing aids objectively. The appropriateness and confirmation of the hearing aid fitting is assessed using technology such as computer based electroacoustic measures (Valente, Hosford-Dunn & Roeser, 2008:150). The electroacoustic measurements of proper hearing aid function is important as the audiologist can accurately determine if the hearing aid is providing the appropriate amplification for the geriatric individual with a hearing loss (Bess and Humes, 2003:122). The common electroacoustic measure used to verify geriatric hearing aid fittings, is real ear measures (REM).

REMs require the use of a 2-cc coupler, probe-microphone system, probe-tube system, speakers and a test box to assess and monitor the hearing aid performance (Valente, 2002:66). REMS are conducted on the geriatric individual wearing the hearing aids. Assessments are conducted with the hearing aids and without the

[11] The coordination and use of the hands and fingers that is needed to complete fine motor tasks. Geriatric individuals with limited movement and coordination of hands will have reduced manual dexterity when using hearing aids. The user will be limited in manipulating the hearing aids. (Ackley & Limb,2007:254)

hearing aids, to determine amplification benefits of the hearing aid on the geriatric individual's ear. The geriatric individual is initially seated in front of the REM system, a probe-tube is then placed into the geriatric individual's ear canal at approximately 5mm from the tympanic membrane and a 50dB SPL stimulus is presented via the speaker (Valente, 2002:53). A real ear unaided response (REUR) is obtained from the hearing aid worn by the geriatric individual with a hearing loss. This verification stage is essential as it considers the individual's ear canal acoustics and structure (Scollie & Seewald, 2002:698). Thereafter the hearing aid and ear mould system are attached to the geriatric individual's ear, a stimulus of 50dB SPL is presented via the speaker and a recording is taken (Valente, 2002:54). This verification response received from the hearing aid attached to the geriatric individual's ear is called the real ear aided response (REAR). The Real ear aided gain (REAG) an in-situ measurement of the hearing aid's functioning is then determined by subtracting the REAR from the REUR (Valente, 2002:55). By using these objective measures the audiologist can ensure that the user is receiving the most effective amplification. These measurements will provide objective results to the audiologist and the hearing aid user. It is critical that hearing aid verification measures are performed by audiologists, on all geriatric individuals fitted with hearing aids, to objectively determine the benefits of the selected hearing aids (Valente, Hosford-Dunn & Roeser, 2008:312).

The final and critical stage of the intervention process is the hearing aid orientation with the geriatric hearing aid user. This stage is vital as the audiologist provides the geriatric hearing aid user with an explanation about the hearing aid and a demonstration of the proper care and maintenance required (Weinstein, 2000:302). It

is important that the geriatric individual with a hearing loss is orientated with the hearing aid as there a various aspects of the hearing aid that may not be familiar to the geriatric individual (Calhoun & Eibling, 2006:66). The demonstrations provided to the geriatric individual includes; the correct insertion and removal of the hearing aids, skills required for daily listening checks to be performed by the geriatric individual, insertion and removal of the batteries and the appropriate cleaning methods to be used (Valente, 2007:312). It is essential that the geriatric individual with a hearing loss is given a written form of the orientation information as information may be missed during the verbal session (Valente, 2002:362). The hearing aid orientation stage provides all the information required for the proper use and maintenance of the hearing aids by the geriatric individual with a hearing loss. An abundance of information is provided to the geriatric individual with a hearing loss during the orientation stage, which may be forgotten. The geriatric population requires a follow-up for the acceptance and use of hearing aids (Hanratty & Lawlor, 2000:517). It is recommended that the follow-up session include a counseling section, group follow-up, the use of video recordings and discussion of expectations. These suggestions will aid in obtaining an increased client satisfaction. Therefore it is imperative that a follow-up session is scheduled to assist the geriatric individual with a hearing loss (Alpiner & McCarthy, 2000:427).

The audiologist is required to adhere to the aforementioned information when assessing and providing intervention to a geriatric individual with a hearing loss. All individuals with a hearing loss must receive treatment within this framework.

In addition to hearing aids, there are also assistive listening devices (ALD) that should be prescribed the audiologist. ALDs were developed to provide the hearing aid user with an improved signal to noise ratio and enhanced speech intelligibility (Lazzaro, 2001:52). ALDs include telephones that are adapted to the hearing aid, frequency modulated systems for group settings, loop systems and infra red systems (Hawking, 2004:279).

Hearing aid technology is improving continuously by the means of directional microphones; digital sound processing and Bluetooth facilities, therefore geriatric individuals with a hearing loss are now able to obtain the best quality hearing aids possible. Hearing aids developed during the last three years include an increase in speech recognition and improve sound quality which will assist the geriatric individual with a hearing loss. Although audiological services are readily available internationally, there is a trend indicating the non-use of hearing aids by geriatric individuals with a hearing loss (Craddock, 2003:510). Audiologists need to create customer acceptance of the developing technologies with the hearing aid field, reiterating that ALDs are an integral part of the intervention and rehabilitation plan for the geriatric individual with a hearing loss (Crandell & Smaldino, 2002:627).

2.4.3.1 Hearing aid use/non-use with geriatric individuals' with a hearing loss

It is essential to consider the international trends of service delivery with the geriatric hearing aid users as references can be made to the South African context. Approximately 30 percent of adults over the age of 65 years are affected by presbycusis (Weinstein, 2003:60). This large number necessitates the need for a

study that determines the perceptions of the hearing aid users, in terms of service delivery. According to the National Institute on Deafness and Other Communication Disorders (NIDCD) (1997), presbycusis may cause the following difficulties in the geriatric individual with a hearing loss:

- The speech of others seems mumbled or slurred.
- High-pitched sounds such as "s" and "th" are difficult to hear and tell apart.
- Conversations are difficult to understand, especially when there is background noise.
- A man's voice is easier to hear than the higher pitches of a woman's voice.
- Certain sounds seem annoying or overly loud.
- Tinnitus may also occur.

These difficulties will impact on the geriatric individual's communication; however there are various strategies available to assist the geriatric individual with presbycusis (Beck, 2002:174). Training in speechreading and lipreading are strategies available to the geriatric individual with a hearing loss, to improve understanding of what is being said in conversations or presentations. Speechreading is taught to the geriatric individual with a hearing loss to utilise both auditory and visual cues to facilitate improved communication (Alpiner & McCarthy, 2000:398). Lipreading training is provided to assist the geriatric individual in detected visual cues such as facial expressions to assist in communication (Nitchie, 2004:5). Geriatric individuals with a hearing loss will benefit from hearing aids, but the degree of benefit can vary according to the type and severity of hearing loss (McPhee & Papadakis, 2008:174). The family of the geriatric individual with presbycusis, who is

fitted with hearing aids, can be given the following additional coping strategies to aid in improving communication, according to NIDCD (1997):

- Face the person who has a hearing loss so that he or she can see your face when you speak.
- Be sure that lighting is in front of you when you speak. This allows a person with a hearing impairment to observe facial expressions, gestures, and lip and body movements that provide communication clues.
- During conversations, turn off the radio or television.
- Avoid speaking while chewing food or covering your mouth with your hands.
- Speak slightly louder than normal, but don't shout. Shouting may distort your speech.
- Speak at your normal rate, and do not exaggerate sounds.
- Clue the person with the hearing loss about the topic of the conversation whenever possible.
- Rephrase your statement into shorter, simpler sentences if it appears you are not being understood.
- In restaurants and social gatherings, choose seats or conversation areas away from crowded or noisy areas.

A study of geriatric individuals with a hearing loss, by Fook (1999:537) revealed that there is a lack of motivation among these individuals to wear hearing aids due to stigmatisation, low expectations of benefit, or failure to accept there is a problem. These issues are currently a major obstacle when managing the geriatric population.

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The stigma behind a hearing impairment is that the geriatric individual with a hearing loss is generally afraid of being labelled as “ignorant and stupid” (Buck, George, Turner & Vanlinden, 2006:40). The stigma leads to incorrect assumptions, stereotyping and a lack of public education about hearing loss (Buck et. al., 2006:41). The style and design of hearing aids may be correlated to the stigma associated with the aids. Historically the hearing aids available were large and unsightly and therefore geriatric individuals with a hearing loss are uninspired to consider the use of the hearing aids. This has however changed within the past few years as hearing aids are now more cosmetically appealing (Snow & Wackym, 2009:123). The stigma related to the hearing impairment hinders the geriatric individual with a hearing loss socially and emotionally. Consequently there is a trend towards a decrease in social activities and communication. Crandell et al. (2002:382) indicated that individuals with a loss of hearing may demonstrate reduced psychosocial, emotional and physical health status.

A study in Finland by Lupsakko, Kautiainen and Sulkava (2005:165) found that there was a link between non-use of hearing aids and people who had a lower income status. This can be applied to the South African context as the majority of population live below the poverty line (Bhorat & Kanbur, 2006:415). It was also evident that the working and manipulation of the hearing aids was too complicated and the users therefore chose not to wear it (Lupsakko et al., 2005:167). The customer who understands the product and who is satisfied with the services will come back to the service provider, the customer that is not provided with good service delivery will be dissatisfied (Lupsakko et al., 2005:167). It is inevitable that these customers will take their business to another provider, if they are not satisfied with the service delivery. It

has been documented in the study by Lupsakko et al., (2005:168) that the private customers have a greater chance of exerting pressure on the private sector than the public customers in the public sector.

Therefore the need for research in the area of health service delivery is critical. The White Paper on the Transformation of the Public Service (WPTPS) (Government Gazette No. 16838, dated 24 November 1995) highlights that the consumer should be consulted in terms of what can be expected in a health care facility which may include: waiting periods at the outpatient clinic; the maximum waiting time for a non-urgent operation; the name of the person responsible for their case; the information they are entitled to receive about their treatment.

The previous idea of large hearing aids are still playing a role in the decision making process of geriatric hearing aid candidates. Geriatric individuals with a hearing loss generally have low expectations regarding the benefits of the hearing aids (Cox, Alexander & Gray, 2007:141). The geriatric individual therefore chooses not to consider the hearing aids as it is assumed that there will be little if any benefit. Another study found that a large number of hearing aid users were stereotyped as “old, less intelligent, ignorant or mentally ill” (Jerram & Purdy, 2001:73). The non-usage of hearing aids with certain geriatric individuals is due to denial of growing older (Nelson, 2004:37). There will be an estimated 70 million people in America who are over the age of 65 by the year 2030 (Gillick, 2006:5). This growing geriatric population who are in denial of the aging process must learn to be ‘gracefully’ and accepting of the inevitable aging process (Gillick, 2006:220). The geriatric population must be persuaded to change thinking and try their best to be comfortable during

their old age (Gillick, 2006:9). The negative sentiment towards growing old is the role player in the denial of the aging process. Therefore the geriatric individual with a hearing loss chooses not to accept that he/she is aging and requires support with amplification devices such as hearing aids. The psychological process of denial is consequently attributed to the non-use of hearing aids with a percent of the geriatric population.

The geriatric population must adapt mentally and physically due to the aging process. The ability to manipulate hearing aids is an important factor when dispensing hearing aids, as manual dexterity plays a key role (Boisen, Lindemann, Lange, Horwits and Parving, 1997:6362). Arthritis is a condition caused by improper cushioning of joints and it is one of the leading problems faced by the geriatric community at present (Nelson, Baker & Roubenhoff, 2003:13). Therefore Weinstein (2000:59) stresses the importance of an in-depth initial assessment. An arthritis study was conducted in the United States in 2001, through the Behavioural Risk Factor Surveillance System (BRFSS). Klippel (2008:3) reported on the findings of this study and it was established that 33% of the American adult population had arthritis or chronic joint symptoms, this estimates to 69.9 million American adults who have this diagnosis. This study also revealed that arthritis increased with age and it was more prevalent in females than in males. The manipulation of hearing aids therefore will become more difficult with age, in users who have arthritis.

The national manager of the South African Arthritis foundation, Mr Mike Boddy indicated in a speech in (2007:May 28th), that no adequate information has ever been gathered in South Africa on how many people have arthritis. He stated that this

deficit of knowledge and information has meant that arthritis has long been treated as the 'Cinderella' of chronic illnesses. The Arthritis Foundation believe that the more known information about those who have arthritis, and what kinds of arthritis people have, the more pressure that can put on the powers that be to improve access to better treatment for more people with arthritis at all levels of society. The Arthritis Foundation is currently gathering statistics on the prevalence of arthritis in South Africa. In the geriatric group a correlation was found between the practical ability and use and satisfaction with the hearing aid (Tye-Murray, 2008:502). The geriatric individual, who could manipulate the hearing aid easily, was more likely to wear it more frequently.

There is an expected demand for hearing aids in the near future as there are a growing number of geriatric individuals who have an 'active retirement' as these individuals attend social gatherings and are actively involved in clubs and societies (Hanratty & Lawlor, 2000:512). They further revealed that the cosmetic appeal of hearing aids has increased, which make the aids more acceptable to the users.

A successful hearing aid fitting with the geriatric individual goes beyond the initial basic audiometric test battery. The geriatric individual's success depends on these areas and it must be taken into consideration during the assessment procedures. The geriatric individuals require attention in these areas as quality of life and hearing aid success is highly important. Bess and Humes (2003:218) reiterate the need for a process that involves the combination of a hearing aid fitting and the rehabilitation process. The two areas complement each other as they work in conjunction to

establish a successful hearing aid fitting for the geriatric individual with a hearing loss. There are three trends of audiological rehabilitation, these include: the detection of the effects of the hearing loss; the demonstration of the treatment efficacy and the emphasis of the positive changes of the individual with a hearing loss (Bess & Humes, 2003:218). The use of this approach ensures that the geriatric individual with a hearing loss is motivated and encouraged to perform at his/her best. Audiologists have indicated that this approach lead to 'fewer returns and fewer complaints' (Bess & Humes, 2003:218).

A study by Buck (2006:1) states that 'nearly 80% of those who could benefit from wearing a hearing aid choose not to use one. There is a plethora of reasons for non-usage of hearing aids (Buck et. al., 2006:1). It was established that hearing aid users were concerned about the 3 to 5 year lifespan of hearing aids and this does not suit people from a lower social economic population (Buck et. al., 2006:2). Users stated that there are many factors that may cause damage to hearing aids and it is often difficult to remember all the factors (Buck et. al., 2006:1). The lifespan of hearing aid batteries has been highlighted by users and they state that the batteries do not last long enough and that they are costly. Another contributing factor is that hearing aids are becoming miniaturised and individuals are finding it very difficult to manipulate the battery door and the hearing aid itself (Adams, 2005:157).

A study by Tomita, Mann and Welch (2001:279) revealed that three-quarters of those who reported that their hearing impairment had a large impact on their daily lives did not use hearing aids. A core reason for non usage could be that these

individuals live alone and therefore have minimal need for communication. There was a lack of understanding about the additional benefits of hearing aids. These include hearing the doorbell, hearing the telephone ring, hearing alarm signals and hearing environmental sounds (Tomita et al., 2001: 281).

It is necessary for the users to be aware of such sounds as it aids in the geriatric individuals safety and well-being. Tomita et al. (2001:290) reported on a study conducted at an old age home in Sweden. It was found that more than half of the geriatric population were not wearing their prescribed hearing aids. To combat this dilemma, a rehabilitation programme was established. Assistants were employed, by the Society for the Hard of Hearing, to conduct regular home visits to facilitate the proper use of hearing aids. As a result there was an increase in usage. This venture proved successful in Sweden but in South Africa minimal funds are available for the monitoring of the geriatric hearing aid user as the health care system is still in a developmental phase (Everatt, 2006:5). The South African health system has limited manpower, finances and time to implement this type of study in the country (Everatt, 2006:6).

2.4.4 Intervention: Aural rehabilitation

Aural rehabilitation is an intervention method used to minimise and alleviate the issues experienced by the geriatric individual with a hearing loss (Tye-Murray, 2008:385). Therefore aural rehabilitation is provided after the hearing aid fitting process to reduce the communication hurdles associated with the geriatric individuals hearing loss (Hull, 2001:12). Communication and social activities that have been negatively affected by the hearing loss must be targeted and improved

with aural rehabilitation (Tye-Murray, 2008:479). The ramifications of a hearing loss on the geriatric individual's life can be reduced through a comprehensive aural rehabilitative process (Tye-Murray, 2008:2). The components of a typical aural rehabilitation program by (Tye-Murray, 2008:7) are outlined in Table 2.3.

Table 2.3: Components of a typical aural rehabilitation program

Components of a aural rehabilitation program
The quantification of the hearing loss through an assessment of the hearing loss and the assessment of speech recognition skills.
The provision of appropriate hearing aids for the geriatric individual.
The provision of additional assistive listening devices if necessary.
Auditory training through structured and unstructured listening activities.
Teaching communication training using repair strategies and environmental management.
Providing counselling and education about the hearing loss and the effects of the hearing loss.
Prove the geriatric individual with the opportunity to experience real communication situations and provide the skills to cope in these situations.
Speech reading training should be provided.

The components of a typical aural rehabilitation program outlined in Table 2.3 must be adapted to the geriatric individual with a hearing loss as this individual must be taught how to adapt to the psychosocial impact caused by the hearing loss on ones daily life. The focus of geriatric aural rehabilitation sessions involves counselling to assist with the changes caused by the hearing loss and to facilitate improved communication (Hull, 2001:14). Counselling with the geriatric individual with a hearing loss involves an enhanced discussion and understanding of the hearing loss

and its effects on lifestyle and communication (Tye-Murray, 2008:427). The aural rehabilitation must encourage the geriatric individual with a hearing loss, to accept the hearing loss and adapt to the consequences of the hearing loss (Tye-Murray, 2008:479). Therefore the acceptance and understanding of the hearing loss will hence reduced the stress and anxiety caused by the geriatric hearing loss and it the increase the compliance of hearing aid use.

The aural rehabilitation counselling sessions must include a family-centered approach which includes the audiologist, the geriatric individual with the hearing loss and the individual's family to ensure that all elements of the total aural rehabilitation process are met (Paul, 1994:91). Hence the geriatric individual with a hearing loss is provided with psychosocial support from all individuals, during the intervention process. Aural rehabilitation with a geriatric individual also includes the key components of assertiveness training, lipreading and speechreading training (Alpiner & McCarthy, 2000:398).

2.5 SERVICE DELIVERY: THE SOUTH AFRICAN CONTEXT

"A fresh approach is needed: an approach which puts pressure on systems, procedures, attitudes and behaviour within the Public Service and reorients them in the customer's favour. It involves creating a framework for the delivery of public services which puts citizens/customers first and enables them to hold public servants to account for the service they receive - a framework which frees up the energy and commitment of public servants to introduce more customer-focused ways of working" (South African Green Paper on Transforming Public Service Delivery, 1996:1).

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The “South African Green Paper Transforming Public Service Delivery” (1996) motivates the need for assessing the customers’ opinion of the quality of the services they receive. This paper provides guidelines for service delivery within the public sector and the Health Departments in South Africa will therefore fall under the governing rules of the Green Paper. The field of audiology is a registered profession with the HPCSA and will therefore unquestionably be governed by the rules of the South African Green Paper Transforming Public Service Delivery (1996). According to the Oxford Dictionary (2005) a consumer is defined as a person who buys a product or service for personal use. In the field of audiology the primary consumer is the hearing impaired individual. The audiology consumer may be a newborn, a school age child, an adult or the geriatric individual. It is anticipated that the service delivery provided to any of the above mentioned groups of individuals, by any of the public workers will be acceptable according to this document. The South African constitution consists of the ‘basic human rights’, and these rights are applicable to all citizens of the country. Standards at which services are provided must be acceptable within these rights. The South African Green Paper (1996) indicates that the consumer should be fully aware of the services available and there must be transparency of the results and information provided.

The document states that National Departments such as the Department of Health and in turn the Government Hospitals are required to assess service delivery in terms of the principals presented in Table 2.4.

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Table 2.4: Principals of service delivery adapted from the South African Green Paper (1996)

Principals	Implementation of principals in geriatric audiology
Accessibility: It is required that the consumers are made publicly aware of the complaints system in place. Different mechanisms should be used for complaints, such as by telephonic means, written or verbal.	The geriatric individual with a hearing loss must be aware of the system that is in place for complaints and queries with regard to the audiological services and hearing aids received.
Speed: Attending to the customers issues in a timeless fashion is a necessity. There must be communication between the customer and the person attending to the issue, progress of the situation must be outlined.	Geriatric individuals with a hearing loss must be attended to in a timely fashion when conducting the hearing assessment. Effective time management must be established to provide the geriatric individual with appropriate intervention measures.
Fairness: A non-bias response should be given to the consumer. If there is dissatisfaction there must be a different avenue available for queries.	All geriatric individuals attending the audiology clinic must receive equal respect and fair services.
Confidentiality: Identity and information should always be protested.	The personal information and results obtained during the hearing assessment and management of the geriatric individual with a hearing loss must be kept confidential.
Effectiveness: The changes that need to be implement to improve service delivery after a recommendation is made, needs to be effective and efficient.	Follow-up sessions provided to the geriatric individual fitted with hearing aids must be beneficial.
Review: A system need to be established to readdress issues and procedures in place.	Audiology clinics must implement a system to review issues and assessment and management procedures that are not effective for the geriatric individual with a hearing loss.

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South Africa faces various challenges such as poverty, high crime and a developing health care system; hence the newly democratic country needs to develop policies and processes that are representative to all who live in the country (Everatt, 2006:5). The principals outlined in Table 2.4 needed to be utilised to ensure that the process of change within the Government health care and service delivery sectors is continuously assessed and amended to improve the country. The White Paper on the Transformation of the Public Service (WPTPS) (Government Gazette No. 16838, dated 24 November 1995) indicates that this process of change is short-term and it is essentially about restructuring the public service delivery processes in South Africa. Eight transformation priorities are delineated by the WPTPS, these include:

- The rationalization and restructuring of public health services.
- Institution building and management.
- Representativeness and affirmative action.
- Transforming service delivery.
- Democratising the state.
- Human resource development and training.
- Employment conditions and labour relations and the promotion of a professional service ethos.

These eight priorities are aimed at encouraging a continuous advancement in the extent, excellence and fairness of service delivery. The South African government is responsible for ensuring that service delivery is regularly improved. The various sectors that provide public services are required to formulate goals for service delivery with respect to services provided. When assessing the service delivery system in South Africa, the focus will be on the relevance to the South African

citizen. The WPTPS states that "public services are not a privilege in a civilized and democratic society: they are a legitimate expectation". Therefore the needs of the South African citizens are paramount. It is a complex situation as the country is currently dealing with a large number of the population who are currently living below the poverty line. A study on the prevalence[12] of poverty in South Africa was conducted in the nine provinces of South Africa and it identified the number of households who are living below the poverty line (Everatt, 2006:1). This study was based on the proportion of the population living in poverty. The poverty index was used; variables include both household and individual-level data. The following areas were considered during the study:

- Female-headed households
- Illiteracy (the proportion of population aged 15 and above who have not completed Std 5/Grade 7)
- Rate of unemployment
- Household income (the proportion of households with no annual income)
- Crowding (the proportion of households sharing a room with at least one other household)
- Dwelling type (households classified informal or traditional)
- Sanitation (households without flush or chemical toilet)
- Water (households without tap water inside dwelling or on site)

[12] This refers to the total number of cases of the pathology in the population at a given time.

- Electricity (households without electricity for lighting purposes)
- Refuse removal (households whose refuse is not removed by local authority)

A large number of households were found to be living below the poverty line. This study indicated that more than one family lived in a single dwelling and the majority of these household had improper sanitation and no running water. It is essential to note that the country of South Africa is growing constantly but the availability of resources it limited at present therefore a large number of the population are living below the poverty line. Bradshaw and Steyn (2001:1) provided a technical report entitled *Poverty and chronic disease in South Africa,* this report stated that South Africa is a middle income country which had fifty two percent of its households living in poverty in 1996. Therefore the implications for new policy and policy changes are necessary (Bradshaw & Steyn, 2001:9). There are three significant implications for the geriatric individual with a hearing loss. Firstly, there is a vital need to improve health care for people with chronic conditions for all sectors of South African society. However, the poor and the previously disadvantaged have the largest need for these improvements. Secondly, there is an urgent need to ensure that there is screening for chronic diseases in the South African population. Therefore strategies to prevent future development of chronic diseases are needed as the country undergoes further growth and development. These strategies must include a total population approach to prevent or reduce the burden of an unhealthy lifestyle and the emergence of risk factors. Early diagnosis and management of chronic conditions in a cost-effective manner is required in South Africa. Lastly, the need to develop a comprehensive set of chronic disease health care indicators, based on data that can realistically be collected in South Africa, has also been highlighted in this technical report.

The South African government has derived the principals of '*Batho Pele'* or 'people first', in its approach to ensure equality and proper service delivery. The Batho Pele principals are primarily enforced in hospitals, clinics and governmental areas. Batho Pele is a Sotho translation which is a project to ensure that public servants are service orientated, to aim for excellence in service delivery and to vow to continuous service delivery improvement (Batho Pele Handbook - A Service Delivery Improvement Guide, 2003). Batho Pele is not an "add-on" activity; it is a way of delivering services by putting citizens at the centre of public service planning and operations. It is a change to include all citizens for the achievement of a better life for all through services, products, and programmes of a democratic system. The vision and mission of Batho Pele is to "continually improve the lives of the People of South Africa by a transformed public service, which is representative, coherent, transparent, efficient, effective, accountable and responsive to the needs of all" and to allow for "the creation of a people-centred and a people-driven public service that is characterised by equity, quality, timeousness and a strong code of ethics" (Batho pele handbook - A service delivery improvement guide).

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Table 2.5: South African 'Batho Pele' principals

Principal	Definition
Consultation	Citizens should be consulted about the level and quality of the public services they receive and, wherever possible, should be given a choice about the services that are offered.
Service Standards	Citizens should be told what level and quality of public services they will receive so that they are aware of what to expect.
Access	All citizens should have equal access to the services to which they are entitled.
Courtesy	Citizens should be treated with courtesy and consideration.
Information	Citizens should be given full, accurate information about the public services they are entitled to receive.
Openness and transparency	Citizens should be told how national and provincial departments are run, how much they cost, and who is in charge.
Redress	If the promised standard of service is not delivered, citizens should be offered an apology, a full explanation and a speedy and effective remedy; and when the complaints are made, citizens should receive a sympathetic, positive response.
Value for Money	Public services should be provided economically and efficiently in order to give citizens the best possible value for money.
Encouraging Innovation and Rewarding Excellence	Innovation can be new ways of providing better service, cutting costs, improving conditions, streamlining and generally making changes which tie in with the spirit of Batho Pele. It is also about rewarding the staff who "go the extra mile" in making it all happen.
Customer Impact	Impact means looking at the benefits we have provided for our customers both internal and external – it's how the nine principles link together to show how we have improved our overall service delivery and customer satisfaction. It is also about making sure that all our customers are aware of and exercising their rights in terms of the Batho Pele principles.
Leadership and Strategic Direction	Good leadership is one of the most critical ingredients for successful organisations. Organisations who do well in serving their customers can demonstrate that they have leaders who lead by example, who set the vision, and ensure that the strategy for achieving the vision is owned by all and properly deployed throughout the organisation. They take and active role in the organisation's success.

Table 2.5 provides the principals of 'Batho Pele' and a definition of each principal. These principals were derived to ensure that South African citizens are provided with fair services. The roots of these principals come from different policies and legislations. The core legislative frameworks include 'the Constitution of the Republic of South Africa of 1996 (as amended), Section 32 of the Constitution provides for the universal right of access to information held by the State to facilitate the exercise or protection of any right by citizens, the White Paper on the Transformation of the Public Service of 1995 (WPTPS) and the Public Service Regulations of 1999 and 2001'. The WPTPS emphasizes that high-quality services should be available to all customers and that the service providers should not disregard the poorer customers' needs.

A speech by former South African president Mr Nelson Mandela in May 1997, at the Baragwanath Hearing Aid Project, states that one out of every twenty five people in South Africa are profoundly deaf or severely hearing impaired (Mandela, (1999). This large number necessitates the need for an ongoing improvement of the service delivery to this population. The audiological services provided to the hearing impaired geriatric individuals should meet the standards of the governing bodies available. The principals and standards of service delivery should be representative at all sites of practice.

2.5.1 Audiologists view of service delivery in South Africa

Audiological service delivery in South Africa broadly expands through hospitals; clinics; schools; tertiary institutions; industry and hearing aid companies. These

services are provided to a large number of individuals across the ages, from neonates through to geriatric individuals. However the health care system in South Africa is weak as it is being developed to meet the growing health care needs of the country (Olusanya, Swanepoel, Chapchap, Castillo, Habib, Mukari, Martinez, Lin & McPherson, 2007:9). A variety of different cultures and ethnic groups reside in South Africa and specific health care consideration must be given to the individuals assessed. Naidoo (2006:1) conducted a study to determine the audiologists' view of practice and service delivery in South Africa. The participants were all Audiologists practising in South Africa, either in the private sector or the public sector. Each participant was required to complete a questionnaire. The qualification of participants ranged for a PhD in audiology to a diploma in Community Speech and Hearing Therapy. The main outcome of the study conducted by Naidoo (2006:167) revealed that audiology service delivery in South Africa required repositioning. All the audiologists who participated in the study indicated that the basic audiology test battery was conducted but there was a lack of advanced diagnostic tested used. The explanation for the lack of diagnostic services was caused by the dearth of resources such as specialised equipment. Naidoo (2006:117) recognised that geriatric individual follow-up was problematic in the public sector which directly affected hearing aid verification. This was due to the cost incurred in travelling to hospitals and clinics, patients did not always return for the additional assessments. The study revealed that it was difficult to achieve adequate follow-up from the staff point as there is usually a large caseload and a small staff compliment. The unique findings are relevant to the South African population.

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South Africa is a developing country therefore hearing loss goes unnoticed (Swanepoel, Louw & Hugo, 2007:321). The role of the audiologist is vital in decreasing the severe burden of hearing loss when assessing and managing this silent epidemic in South Africa (Swanepoel, Delport & Swart, 2004:634). Barriers exist in South Africa that prevents adequate audiological service delivery to the population. These barriers include (Swanepoel et. al., (2007:325):

- Persistent language barriers as audiologists usually speak a different language to the individual with a hearing loss.
- Lack of public awareness of the effects of hearing loss.
- Lack of awareness of methods to prevent a hearing loss.
- Financial constraints of the health care system.
- Accepting and passive culture towards hearing loss and its effects on the South African population.

The challenge that constantly plagues audiological service delivery in South Africa is the lack of contextual data regarding the statistics of prevalence and etiology of hearing loss in the country (Swanepoel, 2006:265). If this data exists, the future of audiology in South Africa is promising as areas and issues relating to hearing loss can be targeted. South Africans are however fortunate to have the profession of audiology within the health care system when evaluated against the lack of the profession in other African countries (Van de Spuy & Pottas, 2008:S34).

2.6 SUMMARY

Relevant literature provided important information regarding the geriatric individual affected by hearing impairments. The discussion of proper service delivery in the

public health sector is focused around the 'Batho Pele' principals of service delivery. South Africa is a democratic country for more than ten years, but its political and social imbalance of the previous era still exists today. These imbalances exist due to the high poverty rate in South Africa. The South African population still includes a large group of people living below the poverty line; this group is the main receiver of inadequate health care and service delivery. Therefore the need arises to determine the perspectives of South African citizens regarding services received. There is emphasis on international local trends of hearing aid use/non use. These international benchmarks provide the framework for studied to be conducted in South Africa. Therefore the perspectives of South African geriatric individual with a hearing loss are required, to determine their thoughts about service delivery with hearing aids and audiological services received.

CHAPTER 3

METHODOLOGY

The aim of this chapter is to provide the methodological approach used within this study. The following will be discussed: the aims of the study, the research design, ethics, participant selection and size, apparatus and materials and procedures.

Research is a process of data collection and data analysis, to enhance understanding of the area being studied. Methodology provides a logical flow of data collection and arrangement of information obtained, thereafter leading to conclusions to expand knowledge of the area researched. (Leedy, 2001:8)

3.1 INTRODUCTION

The profession of audiology is one of the most recent additions to the South African paramedical field, however the profession is growing. Audiologists in South Africa are faced with the challenge of servicing the increasing diverse, hearing impaired population. (Swanepoel, 2006:262)

The need for adequate service delivery is vital in South Africa as there is an increase of hearing loss in the population (Jamison & Bank, 2006:131). The international statistics reveal that there are over two and a half million people in the United Kingdom who are over the age of 70. It was estimated that only one-third possessed

a hearing aid and a staggering 10 percent will never use the aid (Hanratty & Lawlor, 2000:512). The trend of hearing aid non-use with geriatric individuals is global, validating the need for research within this population to ensure effective and efficient service delivery standards. The geriatric individuals perspectives of service delivery within the field of audiology are important as results obtained will assist in motivating for improved services (Bank, 1997:118). The participation of the geriatric individuals with a hearing loss in this study will provide a voice for other geriatric individuals with a hearing loss, ensuring that specific thoughts and feelings pertaining to this group are heard (Simmons, Frajans & Ghiron, 2007:45). The international trends regarding service delivery in geriatric audiology may be evident within the growing South African geriatric population who have a hearing loss, however there is a lack of research to validate the trend, emphasising the need for research in this area.

3.2 RESEARCH AIMS

3.2.1 Main Aim

The main aim of this study was to determine the perspectives of the geriatric individual with a hearing loss, with regards to audiological service delivery in an affluent, urban area in South Africa.

3.2.2 Sub-Aims

The following sub-aims were developed to achieve the main aim:

- To determine the perspectives of, the geriatric individual with a hearing loss, regarding the assessment procedures conducted by the audiologist.

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- To determine the perspectives of, the geriatric individual with a hearing loss, regarding the extent of information provided to the individual about the hearing aid.
- To determine the perspectives of, the geriatric individual with a hearing loss, regarding the extent of counselling and aural rehabilitation provided.
- To determine the perceptions of the geriatric individual with a hearing loss, regarding his/her hearing aid.
- To determine the perspectives of, the geriatric individual with a hearing loss, regarding his/her hearing loss.

The delineation of the sub-aims is illustrated in Figure 1.3.

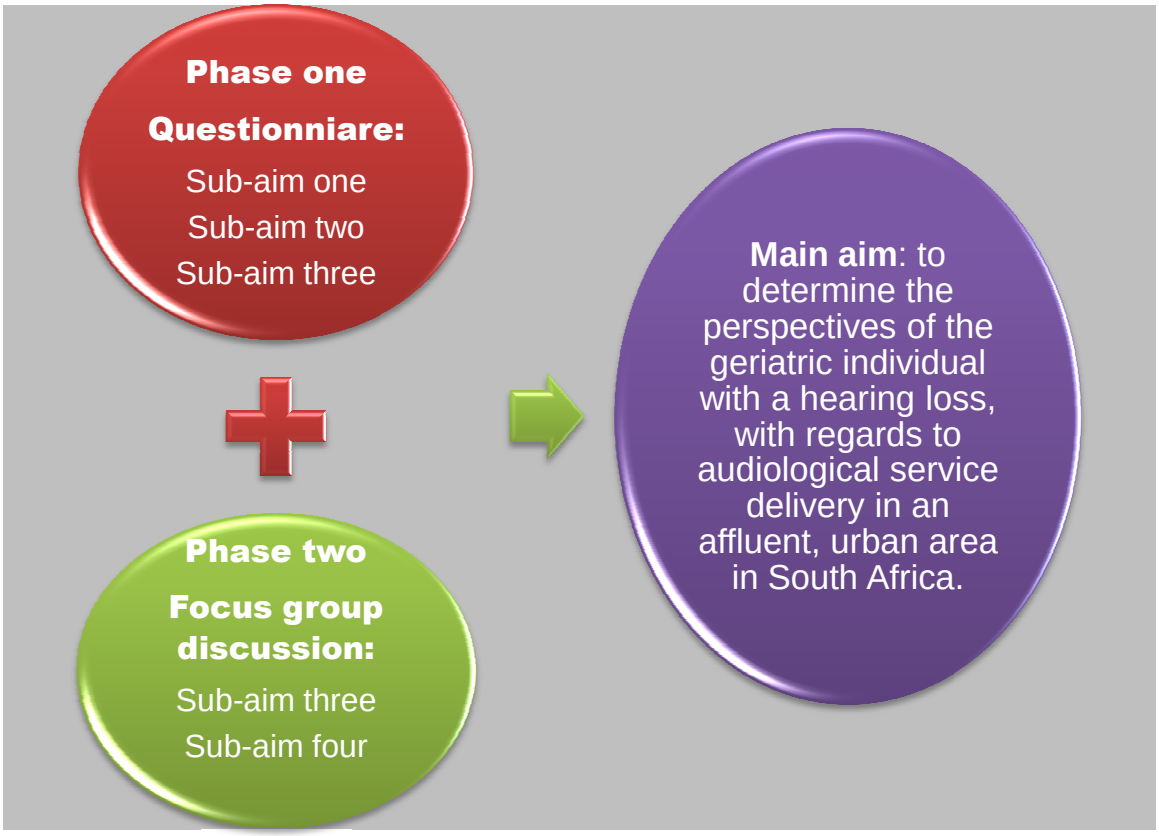


Figure 3.1: Grouping of sub-aims to realise the main aim of the study

The illustration in Figure 1.3 demonstrates the methods used to realise the main aim of the study. Phase one was conducted to obtain results for sub-aim one, sub-aim two and sub-aim three. Phase two was conducted to obtain results for sub-aim three and four.

3.3 RESEARCH DESIGN

The research design section provides the structure of the procedures followed in this study (Creswell, 2003:3). The study focused on reviewing the service delivery provided to the geriatric individuals who have a hearing loss; hence a descriptive survey design was employed. This type of design is effective when gaining information about opinions, feelings, perspectives and attitudes (Wisker, 2001:118), therefore allowing the researcher to determine the perspectives of the geriatric individual with a hearing loss. This research study employed both qualitative analysis and quantitative analysis.

Quantitative research was used in this study to answer questions with reference to audiological service delivery provided to the geriatric individual with a hearing loss (Wisker, 2001:138). Quantitative methods were selected as nature of the data obtained from the geriatric individuals with a hearing loss could be converted into a numerical format for analysis (Steyn, Smit, du Toit & Strasheim, 1994:7). The quantitative component of closed ended questions was used in a questionnaire. The quantitative analysis provided information about the procedures utilised by the audiologists during the service delivery to the geriatric individual with a hearing loss. Quantitative analysis was selected as it provides valuable information about the test procedures that were selected and used during the assessment and management of

the geriatric individual with a hearing loss. Descriptive statistics was used to organise and illustrate the results obtained from the quantitative data obtained (Salkind, 2009:8).

Burnard (1992:97) stated that “numbers are not as important as the quality of the responses”. This statement signifies that the number of responses obtained in a study is not as important as the responses themselves. Therefore a qualitative component was included in investigate the issues that are relevant to the geriatric individual with a hearing loss who wears a hearing aid. History indicates that qualitative research predominately occurred in the consumer products industry (Belk, 2006:244) therefore it was selected for use in this study as the geriatric individual with the hearing loss is the consumer to the audiologist. The study allows the geriatric individuals with a hearing loss, to describe their satisfaction or dissatisfaction about service delivery, as a consumer of the services. The qualitative component of the study also provided a description of the experiences of the geriatric individual with a hearing loss during the consultations with the audiologist and was obtained through the use of a focus group discussion. It outlined the individual’s perceptions of service delivery and characteristics of the service delivery provided by the audiologist. The qualitative research aimed to provide a sound understanding of the perspectives of, the geriatric individual with a hearing loss, and the reasons that govern these perspectives (Wisker, 2001:137). The direct communication between the researcher and the participants provided valuable information pertaining to service delivery provided by audiologists.

The use of both qualitative and quantitative methods allowed for the use of triangulation of method. The triangulation of method include different methods to obtain information thereby validating the research findings (Flick, 2009:445), the perspectives of audiological service delivery obtained of geriatric individuals with a hearing loss, were derived from a questionnaire and a focus group discussion. The use of triangulation ensured that results from both these methods were used to provide the researcher with better knowledge of the geriatric individuals' perspectives; it validated results obtained; a comprehensive understanding of the geriatric individuals perspectives was obtained and a more accurate description of findings were evident (Denscombe, 2007:137). This method provided further grounding of information obtained; different perspectives and results were linked and discussed to obtain a strong supporting argument. Phase one was utilised to realise sub-aim one, sub-aim two and sub-aim three of the study. The results obtained from the questionnaire are discussed according to these sub-aims. Phase two included a focus group discussion, which was used to realise sub-aim four and sub-aim five. The results obtained from phase two are discussed according to themes.

3.4 ETHICAL ASPECTS

When research involves human participants, ethical consideration is important as the participant must be protected from any harm (Gregory, 2003:35) therefore the data obtained from the geriatric individuals with a hearing loss were handled with respect and privacy.

The research proposal for the current study was submitted in 2006 to the Research and Ethics committee of the Faculty of Humanities of the University of Pretoria. And ethical clearance was obtained (Appendix six).

The South African Speech-Language Hearing Association (SASHLA, 2000) has outlined ethical principles for researchers who choose to conduct research in the field of speech pathology and audiology. Beneficence, autonomy, non-maleficence and fidelity are important when ensuring the protection of participants in a research study (McCarthy, 1996:1).

3.4.1 Autonomy

The rights of subjects must be considered when conducting research on human beings (Gregory, 2003:77), therefore ethical cognisance for all subjects in terms of autonomy were as follows:

- Subjects could refuse to participate in the research study.
- Subjects had the right to refuse permission for the recordings to be used for research purposes.
- Subjects could refuse the use of the recordings in public areas in any form.
- Subjects could withdraw information provided and the information would not be included in the research study.

The geriatric individual with a hearing loss who participated in the study were ensured that their rights are protected throughout the study (Burns, Burns & Grove, 2005:182). A letter of informed consent was completed by all subjects in the study.

3.4.2 Privacy and confidentiality

Privacy with regards to information giving and sharing was at the discretion of the geriatric individuals with a hearing loss (Burns & Grove, 2003:171). The subjects in the study were provided with the freedom of privacy, as each subject was ensured that:

- the identity of each subject was only known to the researcher, all information provided was private.
- the geriatric individuals were allocated numbers which were used in the study; therefore confidentiality was maintained throughout the study.
- raw data such as the video recordings obtained was only available to the researcher and other professionals at the University of Pretoria.

The intrusion in the subjects privacy was permitted by all subjects as the informed consent form was completed (Martin, Volkmar & Lewis, 2007:146). The subjects were ensured that respect will be granted when utilising results obtained.

3.4.3 Informed consent

The risk of potential harm to the geriatric individuals who have a hearing loss necessitates the use of a consent form as research is conducted on human-beings (Neuman, 1997:450)

- All willing subjects completed consent forms in agreement to participate. The research process did not involve invasive methods therefore the participants were not a risk for harm.

The geriatric individuals with a hearing loss who signed the informed consent form were allowed to make a meaningful decision to actively participate in the research study (Berg & Appelbaum, 2001:279).

3.5 RESEARCH PHASES

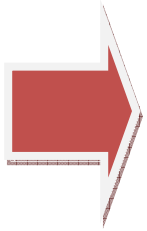
Against the background of the selected research design, the following research phases as outlined in Figure 3.2 were decided on:

PHASE ONE

The completion of a questionnaire, including the following areas:

- **Biographical details**
- **Assessment**
- **Hearing aid information**
- **Counselling and aural rehabilitation**

- Subjects: selection criteria, sampling procedures and description of subjects.
- Research materials: developing the questionnaire and informed consent.
- Pilot study: aims, procedures, results and recommendation.
- Data collection procedures selected
- Data analysis procedures selected
- Validity and reliability of the study



PHASE TWO

Focus group discussion, outlining the following areas:

- **What is customer service?**
- **What is important during the assessment and the hearing aid fitting?**
- **'Good' audiological service delivery.**
- **Referral to the audiologist.**

- The purpose and motivation for the use of focus group.
- Participants: Selection criteria, sampling procedures and description of subjects.
- Research materials: developing the focus group discussion guide.
- Pilot study.
- Data collection procedures selected
- Data analysis procedures selected
- Credibility and transferability.

Figure 3.2: Phases of data collection

According to Figure 3.2, phase one involved obtaining relevant data from subjects via the completion of a questionnaire. The second phase of this investigation involved a focus group session with selected individuals. Each phase is discussed outlining the subjects characteristics, apparatus and materials used, procedures, data analysis and the pilot study.

3.6 RESEARCH PHASE ONE – QUESTIONNAIRE

The initial phase comprised of a questionnaire which was completed by all subjects in the study. This section provides a detailed description of the research subjects, research materials, the pilot study, data collection procedures, data analysis, validity and reliability.

3.6.1 Subjects

3.6.1.1 Criteria for selection of subjects

- **Age:**

The subjects in the study were required to be geriatric as there is a high prevalence of hearing loss in this group (Craik & Salthouse, 2000:157).The geriatric population comprises of all individuals 65 years and older (Wilson, 1997:103). There

- **Use of hearing aids**

This study necessitated the possession of hearing aids by all subjects as the focus of the current study was to determine the perspectives of geriatric individuals with a hearing loss, regarding the service delivery received during the hearing assessment, hearing aid evaluation and follow-up. Therefore it was imperative that all subjects have been fitted with hearing aids either bilaterally or unilaterally. The severity, configuration and type of hearing loss were not crucial in this study as it was not a confounding variable in the study. .

- **Gender**

Subjects could be either male or female geriatric hearing aid users as the

gender of the subject was not a variable in this study. The biographical section of the questionnaire included a choice for gender as the results were required for statistical correlation purposes.

- **Language**

A selected language such as English was not a selected criterion however the questionnaires were developed in English. If subjects spoke a different language a translator would have been used.

- **Location**

All subjects were required to reside at the specific retirement home, ensuring easy access for participation in the study.

- **Mental Status**

Subjects were required to have no mental illness that hindered their ability to understand and process information. Mental illnesses in the geriatric population may hinder the individuals understanding and processing of information provided, therefore results obtained from these individuals during the completion of the questionnaire and the focus group discussion, may be invalid based on the individuals' mental illness (Kennedy, 2001:294). Due to these reasons, it was decided that all individuals in this study should not have a diagnosis of any mental illness.

3.6.1.2 Sampling and selection procedures

Convenience sampling ensures that subjects are selected based on 'proximity, ease-of-access and willingness to participate' in the study (Urdan, 2005:3). Convenience sampling was employed to select old age homes in the affluent urban Sandton and Eastern Suburbs of Johannesburg. A letter was sent to the respective homes to request permission to use the premises (Appendix One). One old age home responded to the request to participate in the study. After the permission was granted by the respective old age home, participants were selected. All hearing impaired geriatric individuals who fulfilled the criteria, who live at the home were approached to participate in the study. The individuals who responded positively were included in the study. The sample size was dependent on the number of hearing aid users residing at the selected retirement home.

3.6.1.3 Description of subjects

Figure 3.3 below summarises the age distribution of the subjects.

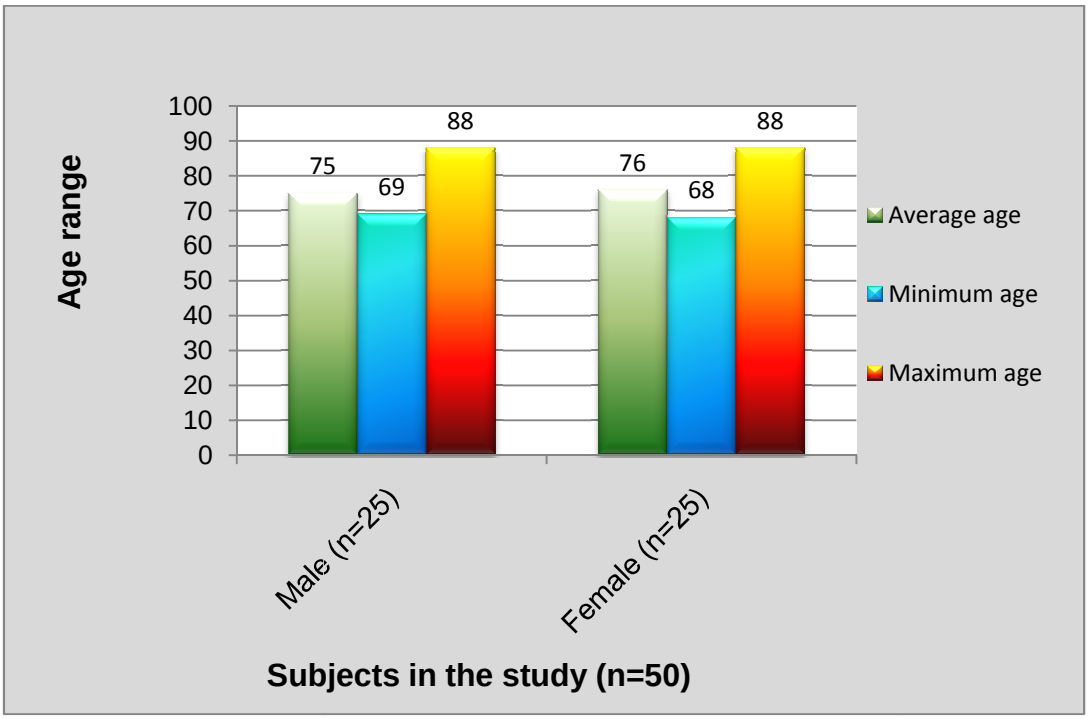


Figure 3.3: Age distribution of the research subjects (n=50)

There were 55 geriatric individuals with a hearing loss residing at the home at the time of the study. The researcher obtained 50 subjects in phase one of the study as 5 individuals were not able to participate. As illustrated in Figure 3.3, all subjects were 65 years and older. There were 25 females and 25 male subjects in the current study. The average male and female age was 76 years and 75 years respectively. All 50 subjects wore either one hearing aid or two hearing aids.

3.6.2 Research material

This sub-section provides a description of the research materials, the letter of informed consent and the research questionnaire, used to obtain the relevant information relating to the study.

3.6.2.1 Letter of informed consent

A letter of informed consent was given to all potential subjects as it is expected that the researcher provides an explanation of the study before the individual gives consent to participate (Gerrish & Lacey, 2006:149). A short but succinct description about the study was provided to all potential subjects (Appendix Two). The geriatric individuals with a hearing loss who were willing to participate in the study completed the relevant aspects of the letter. Informed consent was provided by the subject, to protect the rights of the subject and the researcher (Irwin, Pannbacke & Lass, 2007:32).

3.6.2.2 Questionnaire

Questionnaires were used in this study to gather information about perspectives and

responses to audiological service delivery obtained (Wisker, 2001:147). The questionnaire helped identify relevant information about the perspectives of the geriatric individual with a hearing loss. The researcher used a questionnaire in the current study as specific information on service delivery was required and questionnaires allow for this (Schwab, 2005:38). The geriatric individuals were able to complete the questionnaire at a suitable time that was convenient and this ensured that geriatric individuals were content with participation in the study, as questionnaires are generally not time-consuming (Schwab, 2005:92). The advantages and disadvantages of utilising a questionnaire as a research material are outlined below.

- **Advantages and Disadvantages of a questionnaire**

Advantages of using a questionnaire:

- Using paper questionnaire is inexpensive (Brace, 2004:41).
- They administration of the questionnaire is flexible as it may be conducted in different settings (Brace, 2004:41). In this study the researcher administered the questionnaire in the participant's room or a quiet room at the retirement home.
- Complex issues can be researched as the participant is not giving a verbal response, therefore the participant may be more willing to provide the information (Brace, 2004:27).
- Results provided by the participants are easy to collate and analyse (Gillham, 2000:2).
- Questionnaires ensure that there is no interviewer bias (Gillham, 2000:6).
- Questions selected are standardised for all participants (Gillham, 2000:6).

Disadvantages of using a questionnaire:

- Participants who have queries may not be given the opportunity for clarification (Kumar, 2005:119). In the study the research visited each participant, the participant completed the questionnaire and the researcher was available to attend to any queries from the participant.
- Close ended questions on a questionnaire do not give the participant to elaborate on answers (Gillham, 2000:2). The questionnaire in the current study included open-ended questions to give the participants the opportunity to provide more details.
- Impossible to check the honesty of answers provided (Gillham, 2000:8).

- **Format of the questionnaire**

When developing a questionnaire it is crucial to include all the relevant sections depending on the expected outcomes of the study. Wisker, (2001:148) provides the following points to follow when developing a questionnaire:

- Questionnaires must not be too long as people become irritated and the do not complete it. In this study questions were designed to be short and succinct.
- Ensure that the questions are clear and unambiguous.
- A coding system such as yes/no answers will ensure that the collation of results is straightforward. In the study, choices such as yes/no/unsure were available to the participants.
- The expected outcomes of the questionnaire should enable the researcher to layout the date by using graphs, pie charts and radar graphs. This shows a

clear graphic representation of information.

- Type of questions could be either opened end questions or closed ended questions. The questionnaire used in this study comprised of both open ended and closed ended questions. Subjects were provided with an opportunity to elaboration on the answers provided.
- The format of responses may include preselected answers such as 'yes and no' which will be provided to the subject. The subjects are then required to tick the appropriate selection. The format may also included open-ended questions therefore results may vary from a single word utterance to a paragraph. Subjects are then provided with adequate space for answers. In the study the question included preselected answers such as 'yes, no and maybe'. The geriatric individual with the hearing loss was given the opportunity to elaborate on answers provided.
- When developing a research questionnaire the length of questions and the wording of questions are important. In this study questions were accompanied by descriptions to assist the geriatric individual with a hearing loss in understanding the question.
- The arrangement of sections and questions in the development of a questionnaire provides structure to the research questionnaire. In this study the questionnaire was divided into four sub-sections. The sub-sections in the research questionnaire included: biographical details, assessment, hearing aid information, counselling and aural rehabilitation.

- **Content of the questionnaire**

A questionnaire developed by the researcher was completed by all participants

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(Appendix Three). The questionnaire comprised of the following 4 sections:

Section A

The relevant biographical details were obtained from all the participants in a biographical section in the questionnaire. Section A was used to obtain information regarding the following areas:

- Date of birth
- Age
- Sex
- Address
- Contact number

The researcher required this information for statistical purposes during the study. The information was necessary to track results and trends obtained based on gender. The information was also required as the subjects selected for the second phase of this study needed to be contacted.

Section B

Questions in section B was developed to achieve sub-aim one. The questions in this section were developed using the 'recommended test battery approach for the use with the geriatric' by Weinstein, (1994:580). Section B was used to obtain information regarding the following areas:

- Case history
- Immittance audiometry
- Pure tone audiometry
- Speech audiometry

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- Hearing aid selection
- Hearing aid fitting

Section C

Section C contains questions to realise sub aims two. This section included questions regarding hearing aid use, maintenance and care.

Section D

The questions in section D were formulated using the chapter on 'audiological counselling' (Hodgson, Kizior & Kingdon, (1994:616). The geriatric aural rehabilitation section focused on the patient management for the improvement of the patients' quality of life (Crandell & Smaldino, 2002:382). Currently there is the opportunity for computer-based perceptual training and group counselling to assist the geriatric individual with a hearing loss. The need for follow-ups and rehabilitation with this population is critical to hearing aid satisfaction.

The reasons for including the above-mentioned sections in the questionnaire are set out in Table 3.1

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Table 3.1: Sections included in the questionnaire

Sections	Question Numbers	Target Area	Reason for Inclusion
A	1 to 6	Biographical details	To obtain all relevant Biographical data. This aids in identification of the patient by the researcher and contact details are outlined
B	1 to 17	Assessment conducted	The tests conducted are important in the assessment process. The following areas were covered : Case history, immitance tests, air conduction tests, bone conduction tests, speech audiometry, hearing aid selection and hearing aid fitting,
C	1 to 6	Hearing aid information	To determine if the client has information with regard to his hearing aid.
D	1 to 4	Counselling and aural rehabilitation	To determine what follow-up and aural rehabilitation was conducted.

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3.6.3 Pilot Study

A pilot study is described as a smaller version or trial run of a larger study that is conducted in preparation for the main study; it can involve pre-testing or 'trying out' a research tool such as the questionnaire used in this study (Hulley, 2007:81).

3.6.3.1 Aim of the pilot study

A pilot study was conducted in this study to improve the quality and efficiency of the research material used (Lancaster, 2004:307). Deficiencies in the design of the questionnaire could be addressed prior to the main study. The researcher needed to conduct this brief exploratory investigation to assess the research procedures selected and the research questionnaire developed for this study (Leedy, 2001:116)

3.6.3.2 Procedures

Convenient sampling method was used in the selection of two individuals residing at the old age home. These subjects did not form part of the main research study as Wisker, (2001:147) indicates that the subjects will not be able to respond to the final research questionnaire in a natural and genuine manner. The pilot study subjects were selected based on the following:

- Subjects were required to be hearing aid users.
- Subjects were required to fall within the age range of 65 years and older.
- Subjects could be either male or female.
- The type, degree and configuration of the hearing loss could vary.

The research questionnaire was completed by two subjects, one male and one female. The subjects were contacted by the researcher, an explanation about the

procedure was provided to both subjects. Each subject was required to complete an informed consent form before the completion of the research questionnaire. The researcher insured that the questionnaire was completed in a quiet setting to allow the subjects' time to make suggestions.

3.6.3.3 Results and recommendations

The research believed that the subjects showed good understanding of the research procedures and the questionnaire as no modifications were required; both the subjects had no difficulties with the research questionnaire. The pilot study provided an estimation of the time required to complete the data collection procedure. Each subject took 15 minutes to complete the questionnaire.

3.6.4 Data collection procedures

The following procedures were undertaken in the current study:

- Letters were sent to the respective retirement homes requesting permission to use the facilities. There was a good response from the retirement homes.
- Informed consent was obtained from all participants in this study, prior to participation.
- The participants were then required to complete a questionnaire.
- The questionnaires were completed at the retirement home in a quiet environment. The participant and researcher were seated at a table during the completion of the questionnaire.
- The questionnaires were encoded and the data captured for statistical processing

3.6.5 Data analysis

The procedures used for data analysis are illustrated in table 3.2.

Table 3.2: Analysis of results, phase one

Sub Aim 1	Nature of Data	Analysis Method
To determine the perspectives of, the geriatric individual with a hearing loss, regarding the assessment procedures conducted by the audiologist.	The data is quantitative.	Tabulation of responses and analysis of it. Graphs and charts will support the literature. Descriptive statistical methods were used to present the data obtained in a logical manner (Medhi, 1992:5).
Sub Aim 2	**Nature of Data**	**Analysis Method**
To determine the perspectives of, the geriatric individual with a hearing loss, regarding the extent of information provided to the individual about the hearing aid.	The data is quantitative.	Tabulation and analysis of responses. Graphs and charts will accompany the literature. Results were discussed descriptively as the data obtained provided the researcher with data that pertained to hearing aid use by the geriatric individual with a hearing loss (Creswell, 2003:202).
Sub Aim 3	**Nature of Data**	**Analysis Method**
To determine the perspectives of, the geriatric individual with a hearing loss, regarding the extent of counselling and aural rehabilitation provided.	The data is quantitative.	Tabulation and analysis of response. Graphs and charts will accompany the literature. The t-test was used to compare the responses between the male and female participants in this session of the questionnaire (Urdan, 2005:89).

Table 3.2 summaries the analysis methods used for sub-aims 1, 2 and 3. When measurement departs from theory, it is likely to yield mere numbers, and their very neutrality makes them particularly sterile as a source of remedial suggestions. But

numbers register the departure from theory with an authority and finesse that no qualitative technique can duplicate, and that departure is often enough to start a search.

The results were coded, collated and tabulated for statistical purposes. The t-test was utilised in the study to compare the results obtained from male and female subjects in section D of the questionnaire (Extract One). The statistical significance between the two genders can be established (Urdan, 2005:68), this will indicate if one gender is possibly more open to the suggestion of group aural rehabilitation sessions than the other.

3.6.6 Validity and reliability

The use of quantitative data in the current study required the consideration of validity and reliability of data obtained (Creswell, 2003:171).

3.6.6.1 Validity

Wisker (2001:253) states that validity is when “the methods, approaches and techniques really fit with and measure the issues that you have been researching then the findings are likely to be valid”. In the current research a questionnaire was used to obtain the quantitative data. To ensure validity a pilot study was conducted to determine if any amendments were required. The three forms of research validity: content validity, ecological validity and construct validity are described below (Creswell, 2003:157).

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- **Content validity**

The questionnaire was devised to assess specific areas of assessment and management of the geriatric individual with a hearing loss, therefore the content of questions are precise. This ensures that the content validity was achieved.

- **Ecological validity**

This study indicates positive ecological validity as it was conducted at the subjects' home environment. The subjects were able to provide results that were applicable in their immediate environment (Pucknett & Reese, 1993:27)

- **Construct validity**

Construct validity is applicable to this phase of the study due to the quantitative methods used (Creswell, 2003;157).

3.3.6.2 Reliability

De Vos (2002:85) mention that a research study is reliable when is can be repeated by another researcher and the results are replicated. Wisker (2001: 253) states that these results may be similar but they do not have to be identical. In the current study the concepts were clearly identified in the questionnaire. All the sections were outlined and the areas were defined. The pilot study also indicated that the questionnaire ensured reliability. Research reliability was confirmed as a coding system was used when collating and analysing data (Groth-Marnat, 2009:452)

- Objectivity

The questionnaire required to be theoretically correct in terms of audiological practice, therefore maintaining objectivity. To ensure this occurred, a professional audiologist who was not a part of this study was asked to read over and amend any information that was invalid or incorrect. The researcher ensured objectivity when administering the questionnaire as the geriatric individuals with a hearing loss were allowed to answer questions freely, with no prejudice from the researcher (Groth-Marnat, 2009:45)

3.7 RESEARCH PHASE TWO – FOCUS GROUP

This phase of the research comprised of the determination of the geriatric individual's perspectives of service delivery received from the audiologist. As indicated in the description of the research phase (Figure 3.1) this phase included the use of focus groups as a research instrument in order to comply with the qualitative nature of the research design. There are major issues that were considered when planning and administering the focus group discussion as a method of data collection (Edmunds, 2000:115).

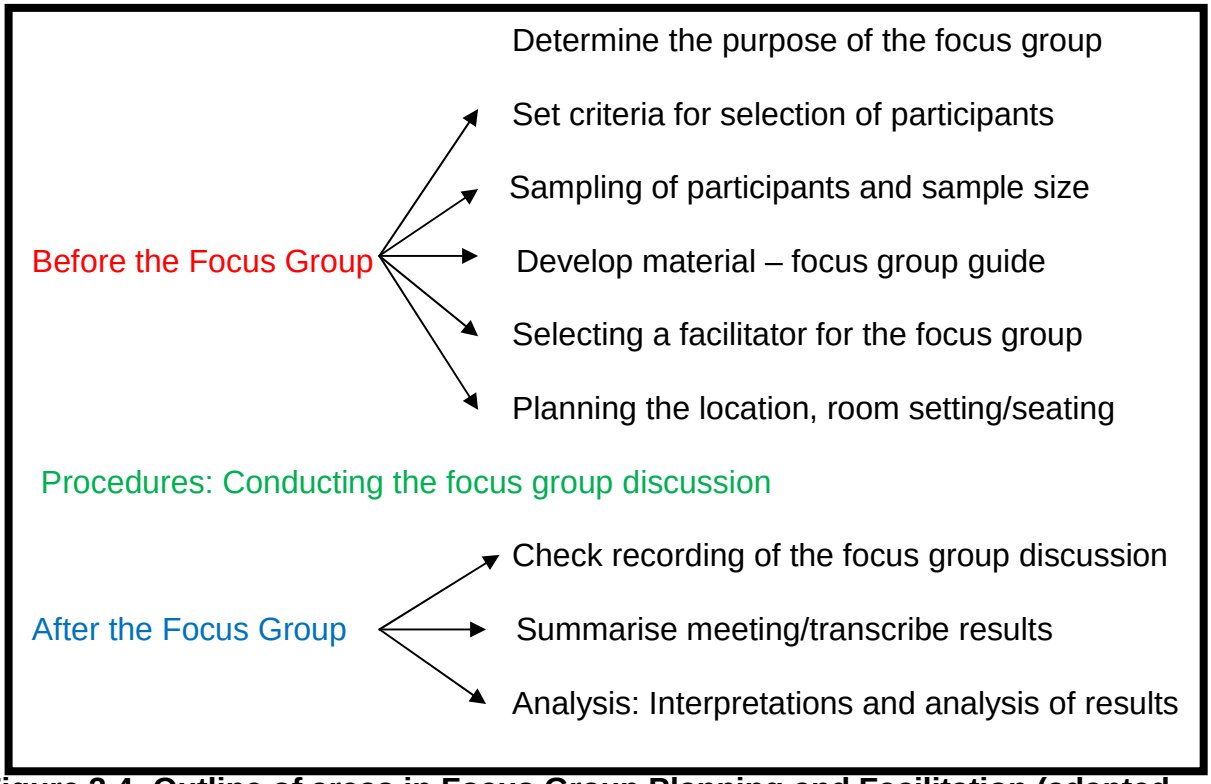

Figure 3.4: Outline of areas in Focus Group Planning and Facilitation (adapted from McNamara, 2006)

Figure 3.4 provides an overview of the focus group planning and facilitation process. There are essentially three main areas that are included; the planning before the focus group session, the focus group session and the time after the focus group session has been conducted. Each area contains clear planning to ensure that the focus group session has organisation and structure.

3.7.1 Purpose and motivation for the use of a focus group

As geriatric individuals generally enjoy being asked their opinion and they usually are not shy about voicing it, it was decided that the focus group discussion was a way to obtain feedback and comments on audiological service delivery (Morgan & Krueger, 1998:1). In this study the geriatric hearing impaired individuals were allowed the

opportunity to discuss issues pertaining to assessment of hearing, the hearing aids received and the service delivery received. The participants were given a forum to discuss their specific thoughts, feeling and perspectives and the researcher gained an abundance of information during the focus group discussion.

- **Advantages of focus group discussions**

An advantage of having a focus group discussion is that the geriatric individuals with a hearing loss could talk about their feelings and experiences (Edmund, 2000:7). They could discuss things that have worked for them in the past and things that did not work well. Geriatric individuals with a hearing loss often require repetition and clarification, another advantage of focus group discussions is that it allows participants to clarify information that is ambiguous (Edmund, 2000:7). This focus group discussion allows participants to independently answer the questions based on their experiences (Steward, Shamdasani & Rook, 2007:165).

- **Limitations of focus group discussion**

Sensitive issues and personal topics should not be discussed in a focus group discussion (Edmunds, 2000:7), With this in mind the questions presented in this study were not sensitive in nature therefore the participants were able to speak freely. The limitations regarding the use of focus groups is minimal therefore the researcher decided to include this method of data collection in the study.

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3.7.2 Participants

3.7.2.1 Criteria for selection of participants

- **Phase one:**

- Age:

The participants in the study were required to be geriatric, therefore 65 years or older (Wilson, 1997:103).

- **Use of hearing aids**

This study necessitated the possession of hearing aids by all participants.

- Gender

Participants could be either male or female geriatric hearing aid users. The gender of the participant was not a variable in this study, however in the biographical section of the questionnaire completed, the participants were asked to indicate which gender they belonged to. This was required for statistical purposes.

- **Language**

A selected language such as English was not a selected criterion however the questionnaires were developed in English. If subjects spoke a different language a translator would have been used.

- **Location**

All participants were required to reside at the specific retirement home in order to ensure easy access for participation in the study.

- **Mental Status**

Subjects were required to have no mental illness that hindered their ability to understand and process information.

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3.7.2.2 Sampling and selection procedures

Random sampling was employed to select participants from the initial group of participants who completed the questionnaire. Numbers allocated to participants were selected from a 'bowl'. Morgan and Krueger, (1998:30) recommend that a focus group discussion should include six to eight participants therefore the first seven participants selected were contacted to participate in the focus group discussion. All seven individuals agreed to participate in the study. All participants completed consent forms to indicate their willingness to participate in the focus group. Focus groups discussions provide a critical evaluate the audiological services provided (McNamara, 2006:1). Basically, focus groups are interviews, with 6-10 people at the same time in the same group where a great deal of information can be obtained. The small number of participants used ensured that there was structure and control of the focus group (Edmunds, 2000:19). A consent form was completed by all participants selected (Appendix Four).

3.7.2.3 Description of participants

Biographical information with regard to the participants involved in the focus group discussion is displayed in Figure 3.5.

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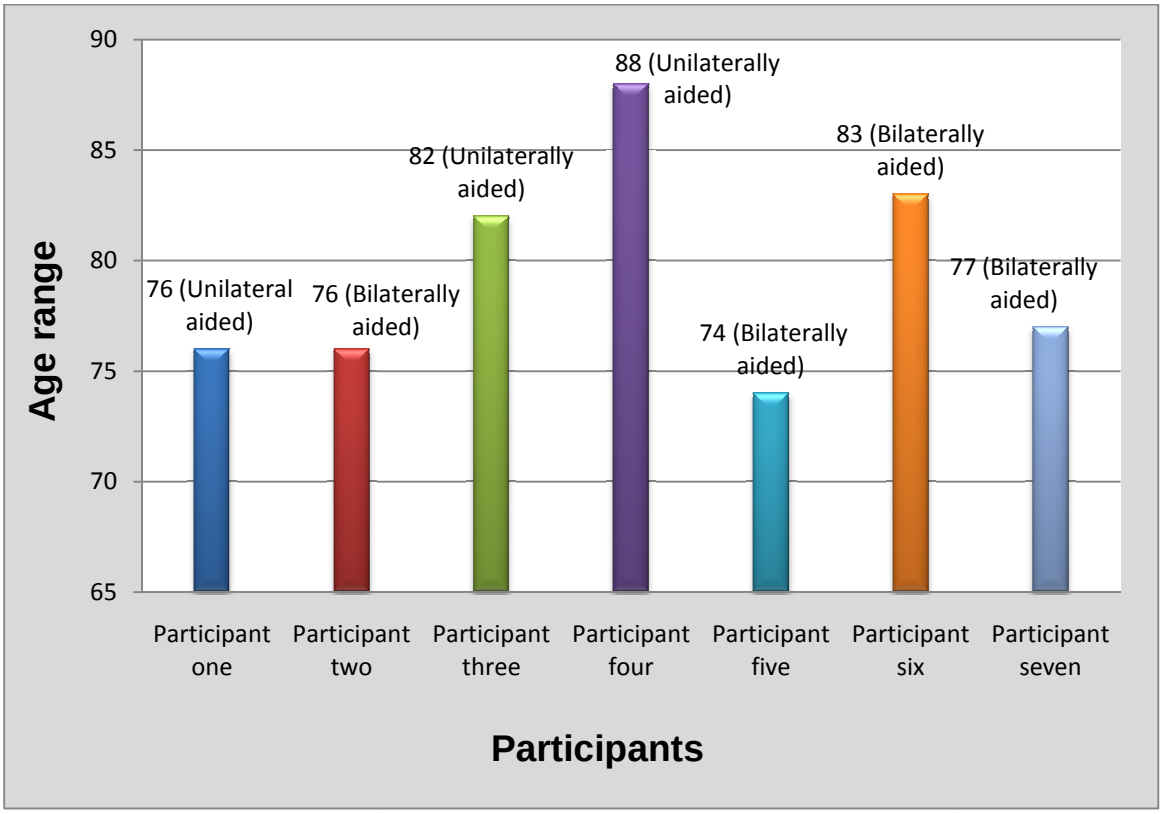

Figure 3.5: Description of the seven focus group participants

Figure 3.5 provides a graphic representation of the seven participant's ages. The oldest participant was 88 years old and the youngest participant was 74 years old. There were three female participants and four male participants in the study. All participants wore hearing aids and were included in the first phase of this study.

3.7.3 Research material

The so-called discussion guide refers to a research instrument used by the researcher to direct the discussion

3.7.3.1 Objective of a focus group discussion guide

A focus group discussion guide was developed to set the agenda for the focus group discussion (Stewart, Shamdasani & Rook, 2007:60). The focus group guide provided

structure and organisation for the focus group participants and the facilitator. Procedural efficacy and procedural consistency of the focus group discussion was controlled and monitored by using the well developed focus group discussion guide (Jayanthi & Nelson, 2002:79).

The focus group discussion aimed to determine which areas were important to the geriatric individual with regards to their hearing impairment and the hearing aid. It highlighted the fundamental views and perspectives of the geriatric individual with a hearing loss in terms of audiological service delivery received (Morgan & Krueger, 1998:9).The focus group discussion was utilised to realise sub aims four and five.

3.7.3.2 Composition of the focus group discussion guide

The researcher developed open-ended questions for this phase of the study. The questions were adapted using the Morgan and Krueger, (1998:64) focus group kit. In the current study the focus groups was expected to last between 90 and 120 minutes. Therefore the researcher developed an adequate number of questions for the time allocated (Simon, 2008:2). It is suggested that one or two introductory or warm-up questions be included at the beginning of the session, then more serious questions that get at the heart of the purpose, is included. Table 3.3 provides an illustration of the questions used in the focus group discussion.

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Table 3.3: Questions utilised in the Focus Group Session

Question Number	Type of Question	Question	Reason for Inclusion
1	Open-ended	When you hear the words 'Service delivery' what comes to mind?	Introductory question. To obtain perspectives of service delivery in general.
2	Open-ended	What do you think should be the most important parts of the hearing assessment and fitting?	Hearing Assessment is the focus.
3	Closed and Open-ended	Think back to the audiological services you received. Do you think that you received 'good service delivery' and provide a reason?	To attain the geriatric hearing impaired clients' perspective of audiological service delivery.
4	Open-ended	Suppose you were motivating a friend to go to or not to go to your audiologist, what would you say?	To assess why a client may refer another client to the audiologist. What aspects do the participants value during the assessment process.
5	Open-end	Is there anything that you think we should have discussed, but we have missed?	This question provides the participant to discuss issues that they feel are important to the session.

Table 3.3 highlights the five questions that were used during the focus group session. The focus group guide is composed of questions which have a specific intention and purpose for this study (Appendix Five).

3.7.3.3 The facilitator

A focus group facilitator is the person who co-ordinates the session (Simon, 2008:2). She/he should be able to deal pragmatically with all group members. The main role of the facilitator is to keep the discussion and conversation on track and to ensure that every participant is heard (Simon, 2008:2). The facilitator must be knowledgeable about the area assessed to ensure that the questions are understood by the participants. The facilitator should not make participants uncomfortable as the geriatric individuals should provide answers that are non-bias and true. In the current study, the facilitator was the researcher. All participants in the focus group were familiar with the researcher as they were all from phase one of the study.

3.7.3.4 The location

Morgan and Krueger, (1998:71) indicates that a setting which can accommodate the participants and where they would feel comfortable expressing their opinions is required for focus group sessions. The location must be comfortable and unthreatening. The location must be easy for all participants to access and should encourage communication and each participant must be clearly visible to each other.

In the present study the researcher used a quiet room in the audiology department at the retirement home as a location for the focus group. All participants resided at the

home so it was easily accessible to all participants. The room comprised of a rectangular table with chairs around it. The participants were all seated around the table and they were seen by everyone in the group.

3.7.4 Pilot Study

It is not realistic to conduct a pilot study for a focus group discussion session as responses from the geriatric individual is expected to be spontaneous and unbiased (Edmunds, 2000:26). Therefore the pilot study was not conducted in this phase of the study.

3.7.5 Data collection procedures

The following procedures, based primarily on the literature from (Edmunds, 2000) and combined with practical considerations, were followed to ensure the success of the focus group discussions

- The facilitator arrived early to set up the room with all the necessary equipment. The following steps were taken:
  - Seven participants were selected from the initial group of participants. According to Morgan & Krueger, (1998:30) 'there are six to eight participants in a focus group session.'
  - The group was facilitated by the researcher who asked specific questions. The group convened at the retirement home in a quiet environment.
  - Each question was read out aloud by the researcher, all participants were provided with an opportunity to answer each question. The facilitator allowed the discussion to flow from one participant to the next. If someone

was quiet and not apart of the conversation, the facilitator called the participant directly and asked for an opinion.

- An audiovisual recording of the session was made with the permission of all participants in order to assist in the analysis of data. A video camera was set up in the room to ensure that participants were visible. Note taking was employed by the researcher.
- The session was concluded after all the questions were discussed by the participants. The participants were thanked for their willingness to contribute to the research study.

➢ Checking Recordings

The researcher had to ensure that the recording equipment was effective and ensure that the entire focus group session was recorded appropriately.

➢ Summarising recordings and transcription of recordings

The researcher had to make notes on any information that could not have been recorded on camera as ‘fresh impressions’ need to be captured before they are forgotten (Simon, 2008:3). Participants’ facial expressions and reactions that were not captured on camera, may relay important information to the researcher. The results or utterances are transcribed by the researcher. Simon, (2008:3) states that ‘The quick turnaround time on the transcription helps avoid memory lapses’. It is straightforward when transcribing utterances immediately after the session as the researcher can remember any changes or modifications that were required during the session.

3.7.6 Data analysis

The results of the focus group discussion were transcribed and analysed according to the areas assessed and the answers provided. Every utterance by the researcher and the participants were transcribed.

It is vital to consider the results of the focus group as a collective as these results will have general trends, themes and similarities (Morgan & Krueger, 1998:73). Shared opinions and perspectives are noteworthy, the unexpected or atypical results are also important during the interpretation phase. The key to analysing focus group sessions, is to amalgamate the utterances with the context and tone of the participants (Edmunds, 2000:89). Table 3.4 outlines the analysis methods used in the study.

Table 3.4: Analysis of results, phase two

Sub Aim 4	Nature of Data	Analysis Method
To determine the perceptions of the geriatric individual with a hearing loss, regarding his/her hearing aid.	The data is qualitative.	Direct analysis of conversation and utterances during the focus group session. A thematic approach was employed to organise and analyse data in specific themes (Jupp, 2006:187).
Sub Aim 5	**Nature of Data**	**Analysis Method**
To determine the perspectives of, the geriatric individual with a hearing loss, regarding his/her hearing loss.	The data is qualitative.	Direct analysis of conversation and utterances during the focus group session. A thematic approach was employed.

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"Focus groups are, above all, a qualitative research method. Qualitative methods excel at interpretation – giving an understanding of why things are the way they are and how they got to be that why" (Morgan et. al., 1998:12).

3.7.7 Credibility and Transferability

The second phase of the study was qualitative in nature therefore the data was analysed ensuring credibility and transferability.

3.7.7.1 Credibility

There is an abundance of useful of the information obtained in the current study to the field of geriatric audiology (Miller & Dingwall, 1997:9). Credibility of the study was obtained by having a clear, concise framework of the focus group discussion. The questions were selected carefully with specific intentions. Questions were explained to the participants if clarity was required. The additional notes made during the session by the researcher were included in the analysis. The audiovisual recordings used in the focus group discussion were clear and audible ensuring that all data was heard. The structure of the focus group is detailed therefore this study may be replicated by another researcher (Abelson, 1995:170).

3.7.7.2Transferability

Participants in the current study were selected with strict selection criteria which ensure that the research results can be transferable to other geriatric individuals with a hearing loss. All participants were provided with a clear description of what is expected of them during the focus group session. The research contexts, structure

and methods used in this study were detailed to assist the reader in transferring the information received to other geriatric individuals who fit the criteria.

3.8 SUMMARY

The research methodology has been described in detail. The aims of the study, the research design, ethics, participant selection and size, research phases, apparatus and materials, procedures and analysis were explained. The relevant results will be discussed in the ensuing chapter.

CHAPTER 4

RESULTS AND DISCUSSION

The aim of this chapter is to present and discuss the results obtained in the study. Tables and figures are used to illustrate the results. Phase one is discussed using the sub-aims of the study. Phase two provides the reader with themes that were identified during the focus group discussion. The chapter will aim to provide the reader with a critical understanding of the perceptions of geriatric individuals with a hearing loss with regards to audiological service delivery received.

4.1 INTRODUCTION

SASLHA's code of ethics state that speech-language-pathologists and audiologists have a responsibility to increase knowledge in the field of practice (SASHLA, 1997:1). Research is one effective way of increasing knowledge as it helps professionals to provide a better service delivery to patients and it updates one on current trends and developments (Neuman, 1997:1). Research in the South African context is important and vital as the country possesses unique differences in culture, health care services and lifestyle when compared to other countries. Therefore research that is conducted in South Africa will be influenced by the demographics of the country and results obtained from the research will be representative of the

people and the country.

The current study was conducted in an affluent urban area in South Africa. The study aimed to determine the perceptions of geriatric individuals with a hearing loss regarding the audiological service delivery received. Audiologists currently have an abundance of new ideas and technology that can assist them in providing reliable and appropriate service delivery (Tye-Murray, 2008:90). During the past decade technology has revolutionised the hearing impaired world as geriatric individuals now have the option of flexible bluetooth facilities and wireless bilateral hearing aid for communication (Craddock, 2003:506). The development of sophisticated equipment that measures hearing aid fitting have now increased the individuals' satisfaction rate. Real-ear measurements and advanced prescriptive fitting formulas have also allowed for improved hearing instrument fittings. Audiologists can now aim for increased geriatric individual satisfaction as the improvements in technology and fitting software have developed. This development ensures that the geriatric individuals now have access to improved hearing devices to enhance lifestyle and quality of life, therefore it is the audiologists responsibility to ensure that the geriatric individual with a hearing loss is aware of the technological developments available (Stoop, 2008:1)

It is the audiologists' responsibility to provide appropriate service delivery when assessing, diagnosing and managing a hearing loss. The ensuing chapter critically discusses the results obtained from the geriatric individuals, regarding the service delivery received from audiologists.

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The main aim of this study was to determine the perspectives of, the geriatric individual with a hearing loss, with regards to audiological service delivery in an affluent, urban area in South Africa. Within the context of a descriptive research design, a questionnaire and focus group discussion was utilised to obtain quantitative and qualitative data regarding the geriatric individuals' perspectives of audiological service delivery.

The data in this study was obtained in two phases: in phase one 50 geriatric individuals with a hearing loss were conveniently selected from a retirement home in the eastern suburb of Johannesburg, Gauteng. All 50 geriatric individuals were required to fulfil the selection criteria based on age, the use of hearing aids, gender, language, location and mental status. All these individuals complied with the above mentioned criteria and were required to complete a questionnaire in phase one of the study. The first three sub-aims were designed to achieve the main aim of the study. Figure 4.1 provides a schematic outline of these sub-aims.

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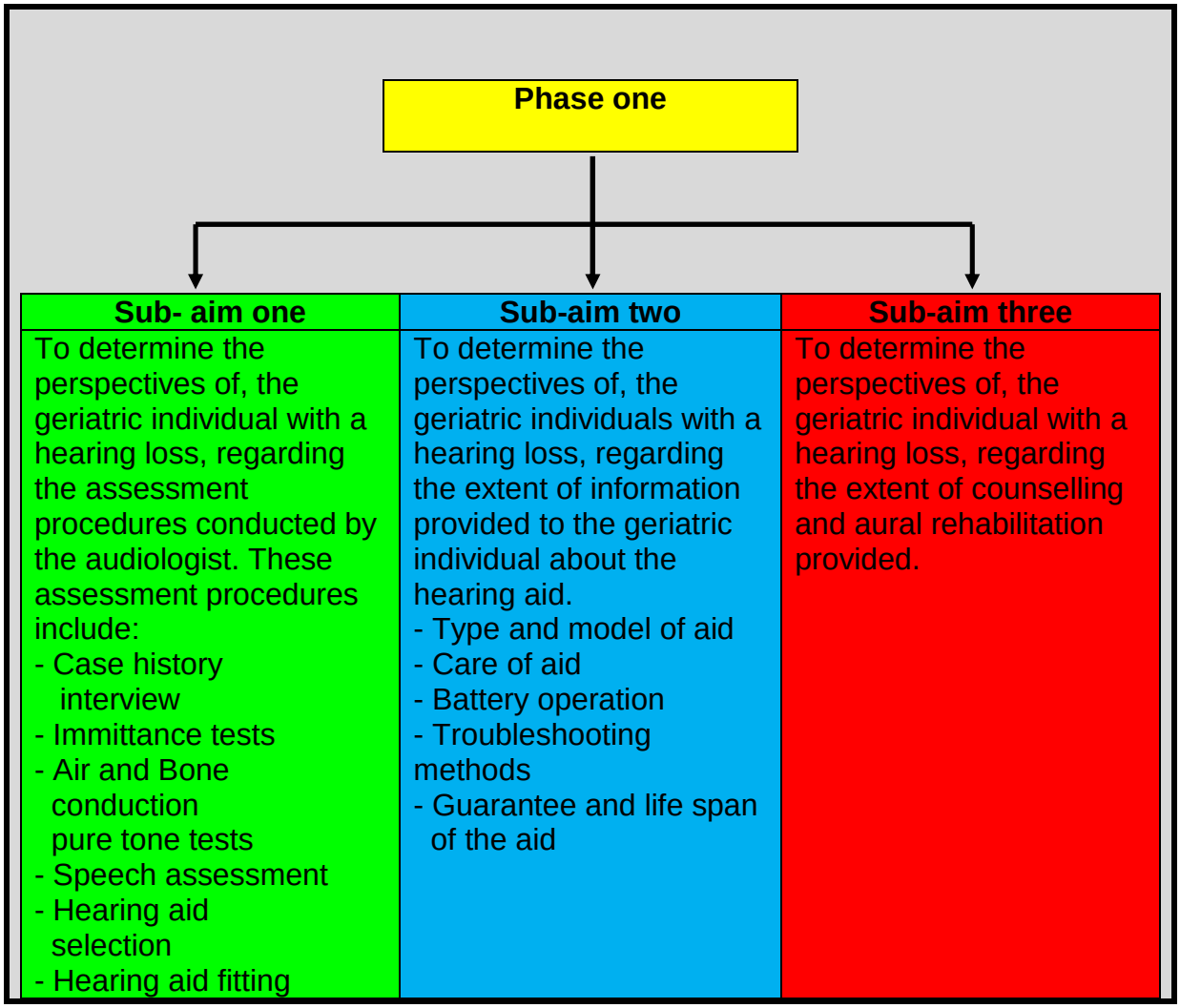

Figure 4.1: A schematic outline of phase one.

Figure 4.1 shows the three sub-aims that will be explored when presenting and discussion the results obtained in phase one of the study. Firstly, there will be a discussion of the perspectives of the assessment procedures conducted on the geriatric individual with a hearing loss. Secondly, the extent of information provided to the geriatric individual regarding the hearing aid will be explored. Lastly, the geriatric individuals perspectives of counselling and aural rehabilitation received from the audiologist, will be presented and discussed.

The second phase of the study comprised of a focus group discussion with seven

geriatric individuals with a hearing loss. These individuals must have completed the first phase of the study. The focus group discussion was utilised to provide valuable information to the researcher about the perspectives, thoughts and feelings of the geriatric individual with a hearing loss, with regard to service delivery. Figures 4.2 provides an illustration of sub-aim four and sub-aim five. The results are presented and discussed in a thematic format, as specific themes emerged during the focus group discussion.

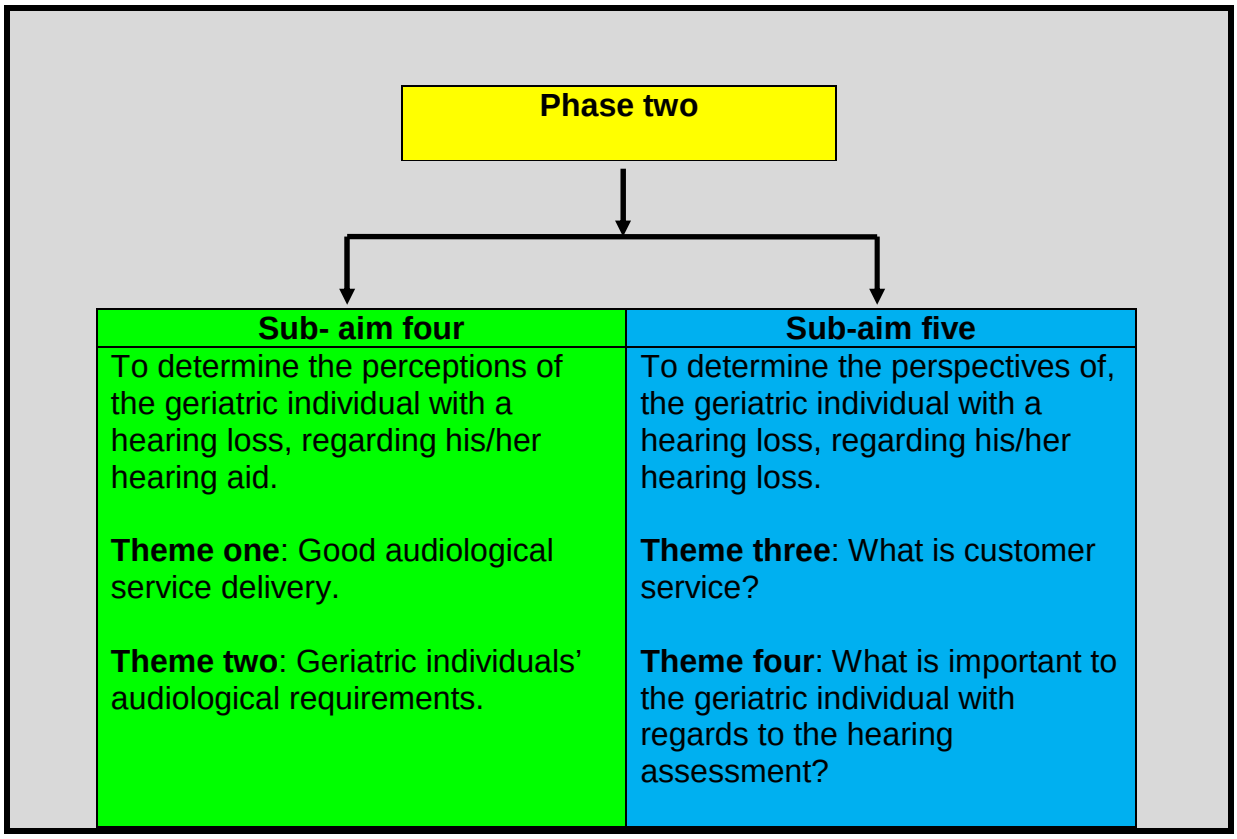

Figure 4.2: A schematic outline of phase two.

Figure 4.2 provides an outline of the themes used to discuss the results obtained from phase two of the study.

4.2 RESEARCH AIMS

4.2.1 Main Aim

The main aim of this study was to determine the perspectives of the geriatric individual with a hearing loss, with regards to audiological service delivery in an affluent, urban area in South Africa.

4.2.2 Sub-Aims

The following sub-aims were developed to achieve the main aim:

- To determine the perspectives of, the geriatric individual with a hearing loss, regarding the assessment procedures conducted by the audiologist.
- To determine the perspectives of, the geriatric individual with a hearing loss, regarding the extent of information provided to the individual about the hearing aid.
- To determine the perspectives of, the geriatric individual with a hearing loss, regarding the extent of counselling and aural rehabilitation provided.
- To determine the perceptions of the geriatric individual with a hearing loss, regarding his/her hearing aid.
- To determine the perspectives of, the geriatric individual with a hearing loss, regarding his/her hearing loss.

The results and discussion are provided within the ensuing chapter. Each phase will be elucidated independently.

4.3 RESULTS PHASE ONE

4.3.1 Results and discussion of sub-aim one

THE ASSESSMENT PROCEDURES CONDUCTED BY THE AUDIOLOGIST.

The first sub-aim of this study was designed to determine what assessment procedures were conducted by the audiologist during a diagnostic hearing test, of the geriatric individual with a hearing loss. It must be noted that all the participants were fitted by different audiologists and at various sites. In the questionnaire, section B was used to realise this sub-aim. This section consisted of seventeen questions pertaining to the assessment procedures conducted on each participant. The following discussion will provide the results and a critical argument of the data obtained for each sub-section in section B of the questionnaire.

4.3.1.1 Verbal case history interview

This exposition includes the responses of the subjects on question 1 in section B the questionnaire. Figure 4.3 illustrates the responses of fifty subjects who completed the verbal case history question.

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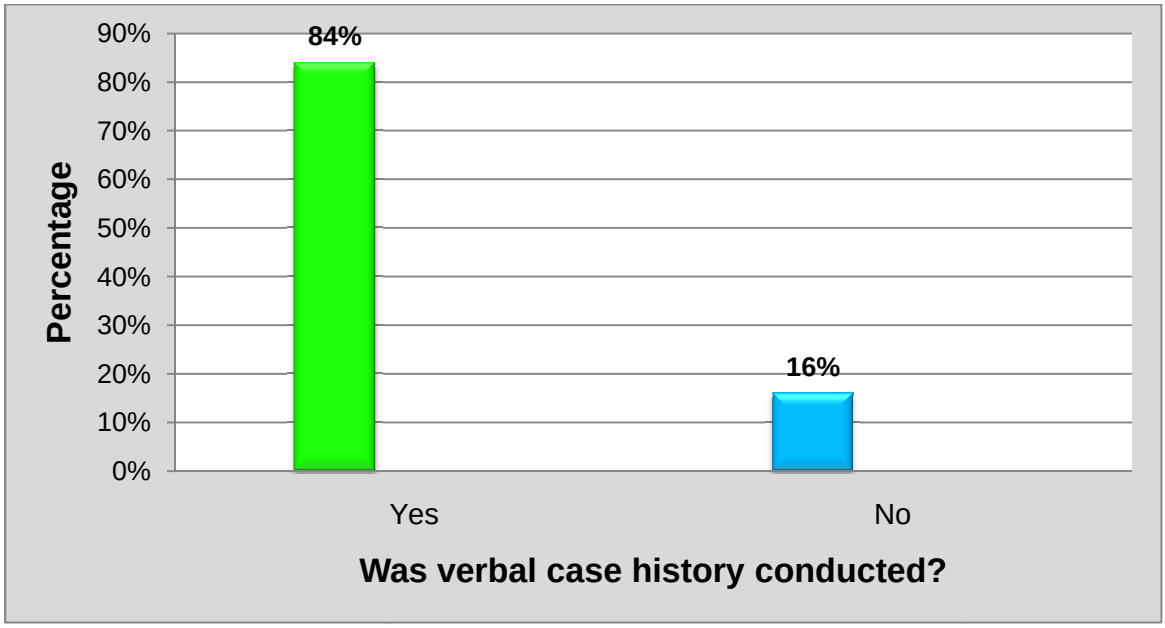

Figure 4.3: The verbal case history interview.

The subjects were initially asked if the audiologist began the assessment with a verbal case history interview**.** It is indisputable that conducting an in-depth case history is important during a hearing assessment (Gelfand, 2009:158). As depicted in Figure 4.3 this study revealed that 84% of the subjects assessed, were involved in a case history interview. The remaining 16% stated that the audiologist did not conduct this procedure with them. When analysing these findings it can be derived that 84% of the subjects gave the audiologist valuable information before the diagnostic objectives assessments were conducted. It can also be surmised that the subjects were given the opportunity to verbally express their hearing concerns based on their individual life experiences. The sixteen percent of subjects who did not partake in a verbal case history interview may not have given the audiologist a subjective evaluation of their experiences.

The information gained from a case history interview will aid the audiologist in making a differential diagnosis on the specific case (Hosford-Dunn, Roeser &

Valente, 2008:386). Accurate documentation of the individual's history may be as important as the audiometric evaluation (Gelfand, 2009:158). The verbal case interview will assist the audiologist in determining what test procedures are required for the assessment. A rapport is established between audiologist and the geriatric individual with a hearing loss, during a verbal case history interview and this is the foundation of a good relationship (Madell & Flexer, 2008:49). The interview helps set a comfortable environment before the diagnostic tests commence. When conducting the verbal case history interview, Stach (2003:50) reveals that information must be gained with regards to both medical and communication areas. There are significant areas that need to be covered in the case history and these may include the following; statement of the problem, age of onset, the possible causes of the hearing difficulty, concerns of the geriatric individual and the significant other, duration of hearing difficulty, listening demands, social demands and lifestyle, vocational information, medical information, family history, educational history, noise exposure and amplification history.

The participants, who did not have a verbal case history interview, may not have been consulted about these important areas. The audiologist in this situation may therefore have a dearth of information to assist in decision making regarding the cause or onset of loss as the verbal case history interview contains pertinent information including past and present history of hearing difficulties (Gelfand, 2009:158). The results obtained from this research indicate that certain audiologists are possibly eliminating the use of a verbal case history interview in the assessment process. Therefore these geriatric individuals were not given the opportunity to share personal information is a verbal case history session (Valente, 2007:299).

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4.3.1.2 Checklist

This exposition includes the responses of the subjects on question 2 in section B of the questionnaire. Figure 4.4 illustrates the responses of fifty subjects with response to the completion of a checklist.

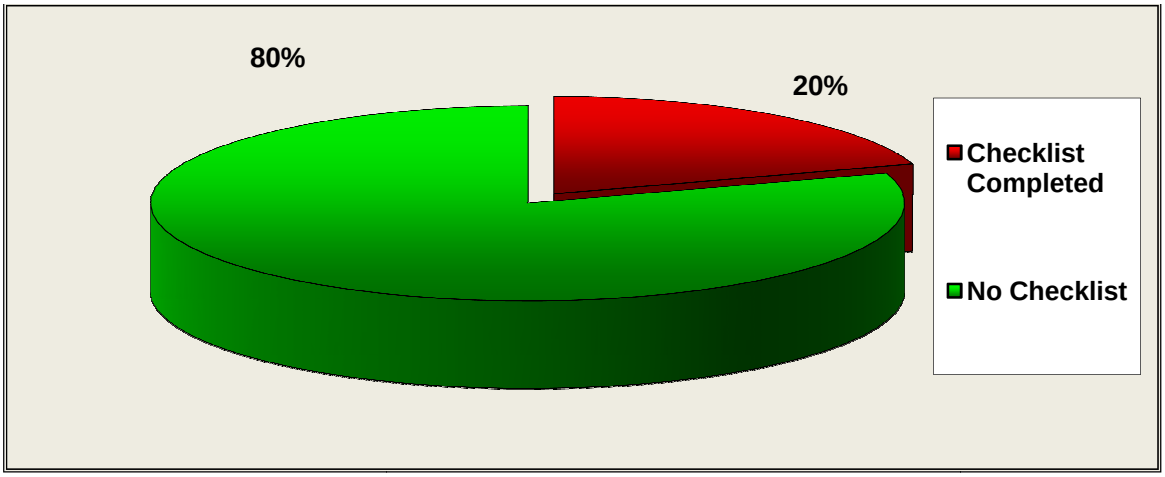

Figure 4.4: Use of a checklist

The subjects were asked if they were required to fill in a checklist about themselves or their hearing. Only twenty percent of subjects indicated that they were requested to complete a checklist regarding social and emotional issues. 80% of the subjects reported that they were not asked to use a checklist, as depicted in figure 4.4.

When assessing the geriatric population there are various checklists available. These checklists provide the audiologist with information about social and emotional issues experienced by the geriatric individual with a hearing loss. During an assessment session there may be insufficient time to cover the entire social and emotional possibilities that may affect the subject. However, the responses to the checklists will allow the audiologist to determine the effects of the hearing loss on the

geriatric individuals' quality of life. Therefore the use of a checklist will reveal additional information that will enable the audiologist to make appropriate recommendations with regards to amplification. The most frequently used checklists in audiology are the following (Sandlin, 2000:501):

- Hearing Handicap Inventory for the Elderly (HHIE)
- Quantified Denver Scale of Communication Function (QDS)
- Self Evaluation of Life Function (SELF)
- Geriatric Depression Scale (GDS)

It is apparent that the majority of the participants did not have the opportunity to fill out a questionnaire thus eliminating the valuable information that can be gained from this area of case history. The checklists and questionnaires would have provided the audiologist with reliable and relevant information about the geriatric individual's self-perceived difficulties (Sandlin, 2009:501).

4.3.1.3 Time taken for the verbal case history interview

This exposition includes the responses of the subjects on question 3 in section B of the questionnaire. Figure 4.5 illustrates the responses of the forty two subjects who were participated in a verbal case history interview. These subjects were required to conclude on the length of time that was taken for the completion of the verbal case history interview.

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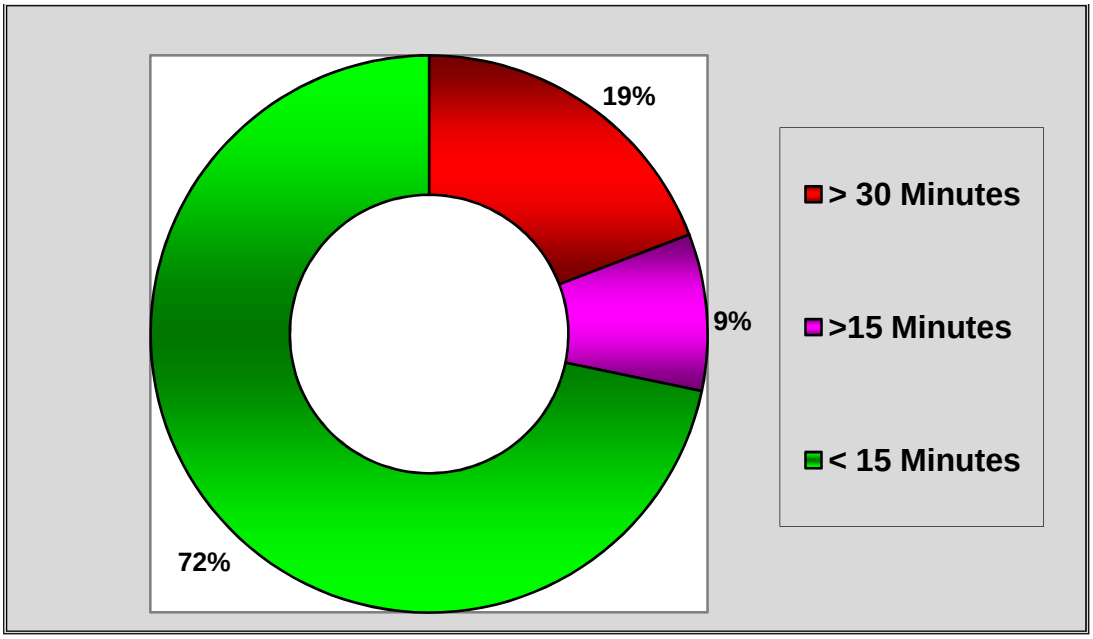

Figure 4.5: Time taken for the verbal case history interview

According to Figure 4.5 there were forty two subjects who confirmed that they were involved in a verbal case history interview. 71% of the 42 subjects were involved in a case history interview that lasted more than thirty minutes. 19% were in the case history interview for more than fifteen minutes and nine percent were in the interview for less than fifteen minutes.

The recommended time to conduct a reliable and conclusive case history cannot be pin pointed to the exact minute. However, it is necessary to spend an adequate amount of time determining the geriatric individual's case history in detail as there are a wide variety of case history questions that need to be covered to obtain an adequate case history (Stach, 1998:167). The questions should be specific and allow for direct answers; thereafter the audiologist may probe positive answers to obtain additional information. Questionnaires used as guides during the verbal case history interview have proved to be valuable as the questions are direct and brief initially,

thereafter the line of questioning will provide additional information based on the key issues provided by the geriatric individual being assessed (Robinette, Cevette & Katz, 2002:142). These questionnaires allow for detailed explanations of important and specific symptoms, such as duration, frequency and description of symptom. Audiologists who take a thorough case history can search for information about the hearing loss and its probable cause (Stach, 1998:167). It is clear that the audiologist must ensure that all areas are covered in detail as valuable information can be obtained from a case history session, therefore sufficient time must be allocated to this area of the assessment.

Social and emotional issues are not noted by the audiologist as the diagnostic hearing assessment commenced immediately without a 'listening' case history session (Harvey, 2003:20). A case study of a client named Joan is illustrated; Joan's negative reactions and ambivalence about the hearing aids could have been addressed if there was a verbal case history session (Harvey, 2003:1). From these statements it is evident that this geriatric individual with a hearing loss had specific thoughts and feelings about the hearing loss that were not addressed as the verbal case history interview was eliminated. There was no opportunity for this individual to discuss her hearing situation thus there was a loss of valuable information. This case reiterates the need for a case history interview.

4.3.1.4 Awareness of test procedures to follow

This exposition includes the responses of the subjects on question 4 in section B of the questionnaire. Figure 4.5 presents the responses of the all subjects in the study, indicating if subsequent test procedures were specified to them.

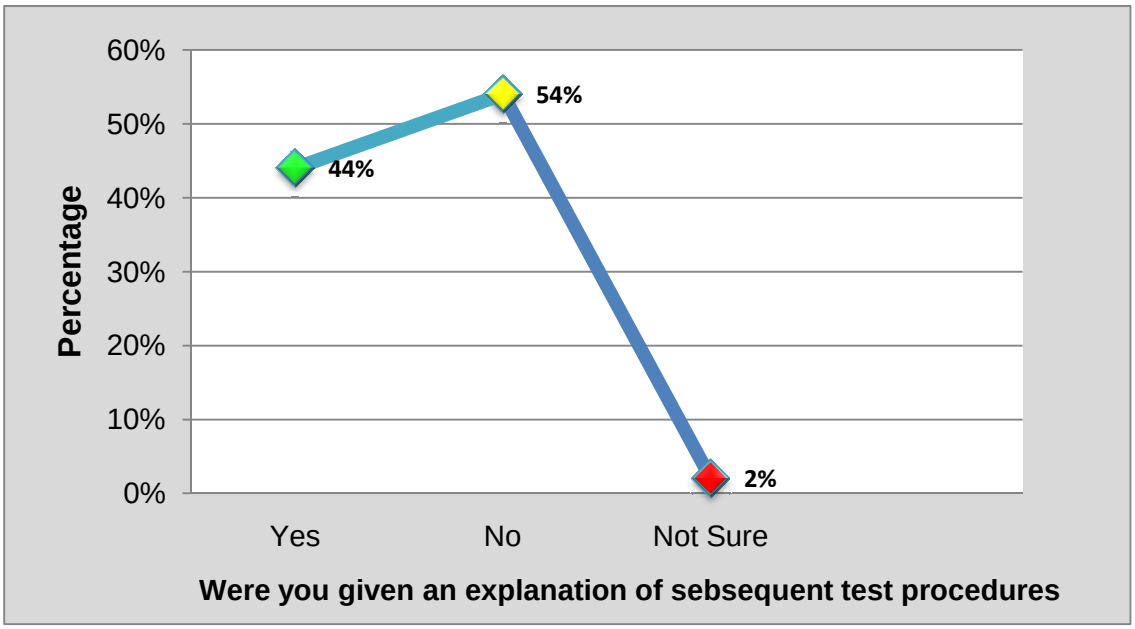

Figure 4.6: Percentage of participants who were informed about the test procedures

According to Figure 4.6 54% of subjects stated that they did not receive and explanation of the test procedures that were to follow. 44% did receive a clear explanation of the different test procedures that were to be conducted during the session. Two percent were unsure if they were informed and stated that the tests were conducted more than 5 years ago and they could not remember this aspect due to the length of time.

When assessing a geriatric individual there should be a clear understanding and consent of the procedures to follow. The geriatric individual with a hearing loss should be made aware of the test procedures that will be conducted and the implications of these tests (Tye-Murray, 2008:485). When the geriatric individual has a good understanding of the test procedures to follow, they are less apprehensive and perform optimally. A lack of knowledge and low expectations discourage

geriatric individuals with a hearing loss, from seeking assistance for the hearing difficulties (Valente, Roeser, Hosford-Dunn, 2000:251). Therefore, the additional information provided to the geriatric individual may alleviate any uneasiness about the test procedures and the hearing results. There are legal implications for the health care practitioner who fails to obtain informed consent for any procedure performed on the geriatric individual. It can be deduced that in the field of audiology the assessment procedures are less invasive than that of the medical field; it is however still necessary to ensure that geriatric individuals are informed about the assessment procedures that will be conducted. The geriatric individual should give approval and consent to the assessment procedures conducted.

4.3.1.5 Immittance audiometry

This description includes the responses of the subjects on question 5 in section B of the questionnaire. Subjects were required to indicate if immittance audiometry was conducted. The diagnostic terminology was eliminated from the question and it was replaced by a description of the test procedure. A basic description of the test procedure was provided to the geriatric individual, for clarity. Subjects were required to state if immittance audiometry was conducted during the hearing assessment. Figure 4.7 graphically presents the results obtained from the geriatric individuals.

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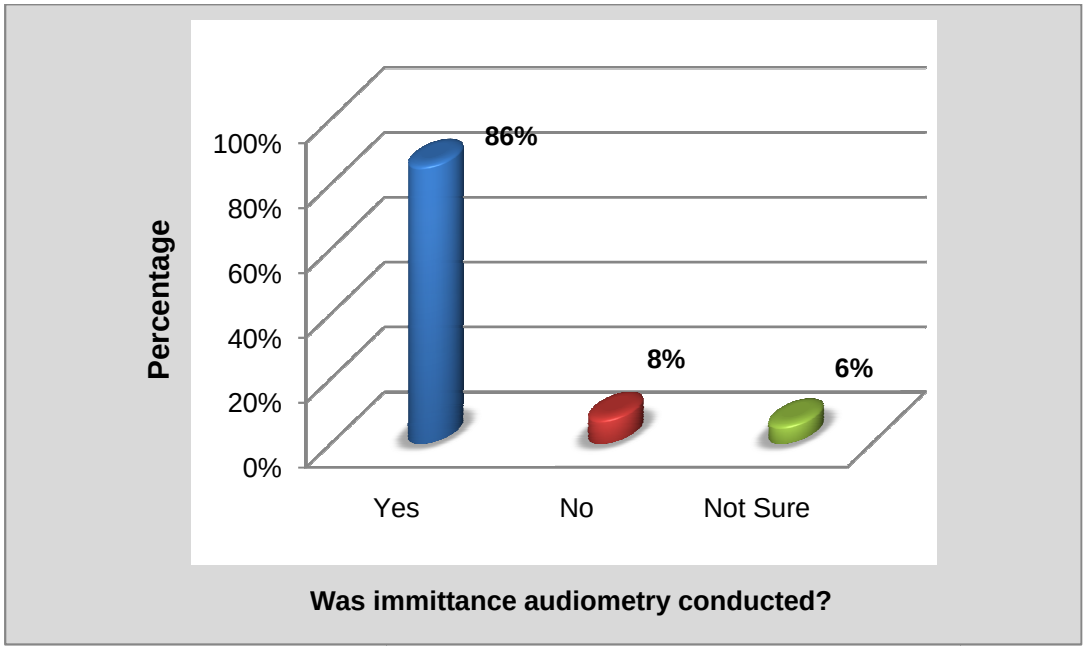

Figure 4.7: Immittance audiometry

As depicted in Figure 4.7 six percent of the subjects indicated that they were unsure if immittance tests were administered, eight percent stated that this test was not performed and 86% noted that immittance testing was conducted. Immittance testing is an essential middle ear function test, tympanometry and acoustic reflex assessments form an integral component of the basic audiological test battery (Hersh & Johnson, 2003:56). Immittance testing detects abnormalities in the external and middle auditory systems and enables the audiologist to assess the tympanic membrane functioning, the middle ear status and the integrity of the acoustic reflex pathways (Gelfand, 2009:582). 86% of the subjects indicated that immittance tests were performed and this ensures that the outer and middle ears were adequately assessed in these subjects. Subjects' who are not assessed using immittance tests, were not eliminated for a developing otitis media, middle ear effusion, eardrum pathology, ossicular disarticulation, otosclerosis or an acoustic neuroma, (Fowler & Shanks, (2002) in Katz, 2002:175). The importance of including immittance

audiometry in the basic audiological test battery is high, these tests can be used to identify cochlear lesions as well as retrocochlear lesions such as vestibulocochlear nerve lesions, (Dobie & Hemel, 2004:93). When assessing the geriatric individual with a hearing loss, a cochlear lesion is noted when the acoustic reflexes are reduced or absent ipsilaterally and contralaterally (Gelfand, 2009:230). The retrocochlear lesions may be detected by normal ipsilateral acoustic reflexes and abnormal contralateral reflexes. (Gelfand, 2009:131). It can be surmised that the audiologists who eliminated this critical test measurement from the basic assessment, could have overlooked a retrocochlear diagnosis. The elimination of this assessment procedure decreases the effectiveness of an integrated diagnosis.

4.3.1.6 Pure tone air conduction audiometry

This discussion includes the responses of the subjects on question 6 in section B of the questionnaire. Subjects were required to indicate if pure tone air conduction audiometry was conducted. The results revealed that all the subjects underwent pure tone air conduction testing. This implies that all subjects were fitted with hearing aids based on pure tone diagnostic assessments. Pure tone audiometry is the essential test when assessing hearing as this test combines a behavioural response from the geriatric individual, the clinical technology of the audiometer and the skills of the trained audiologist, (Harell in Katz, 2002:71). Pure tones are assessed at a range of frequencies then compared to normative data. These results will give the audiologist the type, degree and configuration of the geriatric individual's hearing loss, if it exists (Roeser, Valente & Hosford-Dunn 2000:238). The field of audiology has changed over the years but there have been only modest modifications to the pure tone

audiometric test, thus indicating its effectiveness and reliability, (Harrell, in Katz, 2002:71).

4.3.1.7 Pure tone bone conduction audiometry

This exposition includes the responses of the subjects on question 7 in section B of the questionnaire. Figure 4.8 presents the responses of the all subjects in the study, indicating if pure tone bone conduction audiometry was performed.

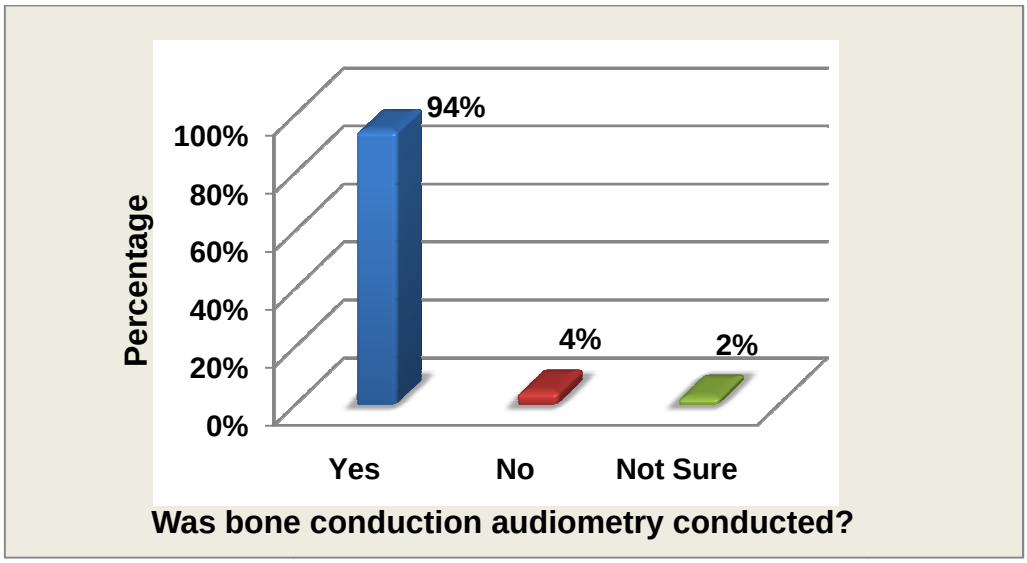

Figure 4.8: Bone conduction pure tone audiometry

As depicted in Figure 4.8, 94% of subjects indicated that bone conduction testing was conducted. Four percent indicated that the audiologist did not conduct bone conduction tests and two percent were unsure.

The sensorineural sensitivity of the individual is determined via bone conduction (Hall & Mueller, 1996:89). Bone conduction in conjunction with tympanometry could indicate if a conductive hearing loss exists. The current study indicated that the majority of the participants were assessed with the use of bone conduction. This

ensures that the audiologists were able to make recommendations based on any conductive components that were detected. The subjects, who were not assessed using acoustic immittance tests and bone conduction tests, were not assessed for possible middle ear abnormalities. Bone conduction testing is invaluable when it is used in the diagnostic audiology test battery, it can be used to correctly identify a conductive pathology that exists, (Roeser & Valente, 2007:251).

4.3.1.8 Speech audiometry

This discussion includes the responses of the subjects on question 8 in section B of the questionnaire. Figure 4.9 presents the responses of the all subjects in the study, indicating if speech audiometry was performed.

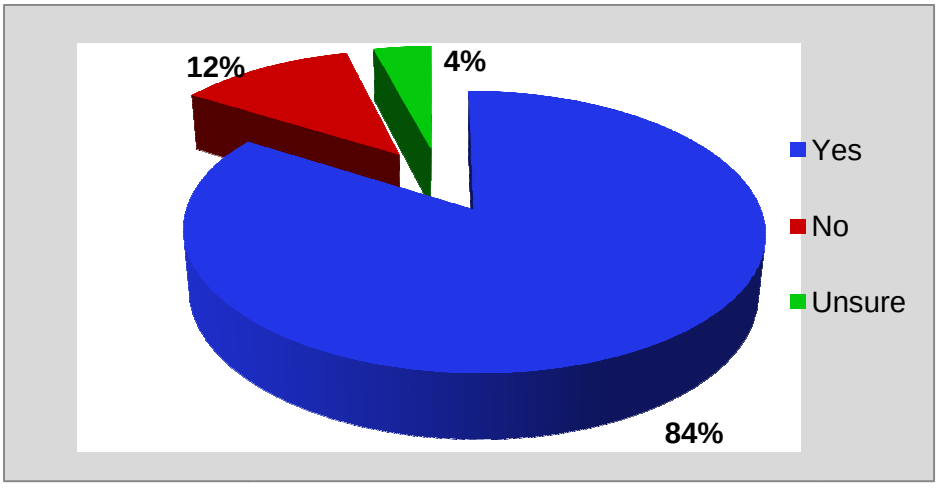

Figure 4.9: Speech audiometry

84% of the subjects indicated that speech audiometry was performed. There were 12% who were not assessed using speech audiometry and four percent who were unsure if it was performed. Case history with an individual with a hearing loss, frequently reveals difficulties experienced with inability to hear people in conversations. The individuals state that they hear the speaker but have difficulty

determining the words being uttered. Approximately 88% of geriatric individuals with a hearing loss have poor speech recognition. Frequency specific pure tone tests are used to clinically evaluate the hearing levels of the geriatric individual with a hearing loss (Gelfand, 2009:127). In the daily lives of geriatric individuals with a hearing loss, there is a limited number of pure tones that are heard (Roeser, Hosford-Dunn & Valente, 2007:291). However, speech is the most common form of sound that we are exposes to on a daily basis. This can occur in the means of a conversation, on television or as music.

Speech audiometry therefore provides the geriatric individual with a realistic test that will aid in determining the extent of impact the hearing impairment has on their daily lives. Speech tests can provide the audiologist with results, indicating when the geriatric individual is able to identify the words 50% of the time (Cecil, Goldman & Ausiello, 2004:2436). Communication predominately involves the spoken language, so this test aids in determining if the geriatric individual's hearing loss affects the comprehension of speech. Speech audiometry assists in the validation of the pure tone assessment results (Gelfand, 2009:239). The word list used during the speech assessment of the geriatric individual with a hearing loss are phonetically balanced with monosyllabic and bisyllabic words (Wall, 1995:183). The words are representative of everyday conversation; therefore the use of a phonetically balanced word list supports the specific assessment of geriatric individuals hearing.

4.3.1.9 Explanation of assessment results

This account includes the responses of the subjects on question 9 in section B of the questionnaire. Figure 4.10 illustrates the results obtained in this question.

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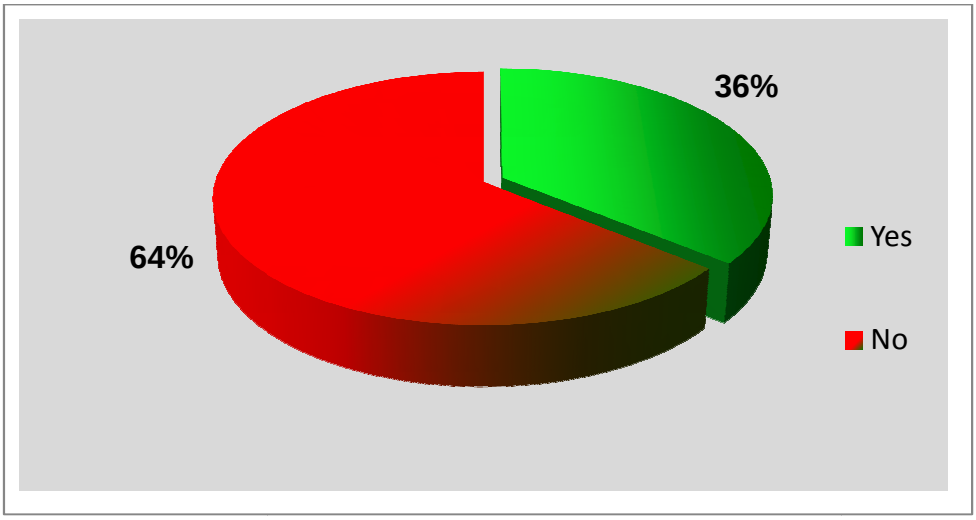

Figure 4.10: Explanation of the hearing assessment results

According to Figure 4.10 64% of the subjects were given an explanation of the test results. 36% did not get an explanation.

It is essential to explain the results to the geriatric individual at the end of the session. The geriatric individual needs to understand what tests were conducted and what results were obtained. The geriatric individual should have a clear description of recommendations based on the results obtained (Duthie, Katz & Malone, 2007:293). Geriatric individuals with a hearing loss should be given the opportunity to ask questions with regards to results and management. The holistic, client centered approach provides the geriatric individual with a hearing loss, with all the details and allows for a clear knowledge of the hearing impairment (Alpiner & McCarthy, 2000:44). Audiologists should move towards this approach during assessment and feedback, thus allowing the individual with a hearing loss to be adequately informed. When hearing impaired individuals have a good understanding of the hearing results it aids in the acceptance of hearing aid usage.

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4.3.1.10 Hearing aid trials

This explanation includes the responses of the subjects on question 10 in section B of the questionnaire. Figure 4.11 illustrates the results obtained regarding the opportunity hearing aid trials.

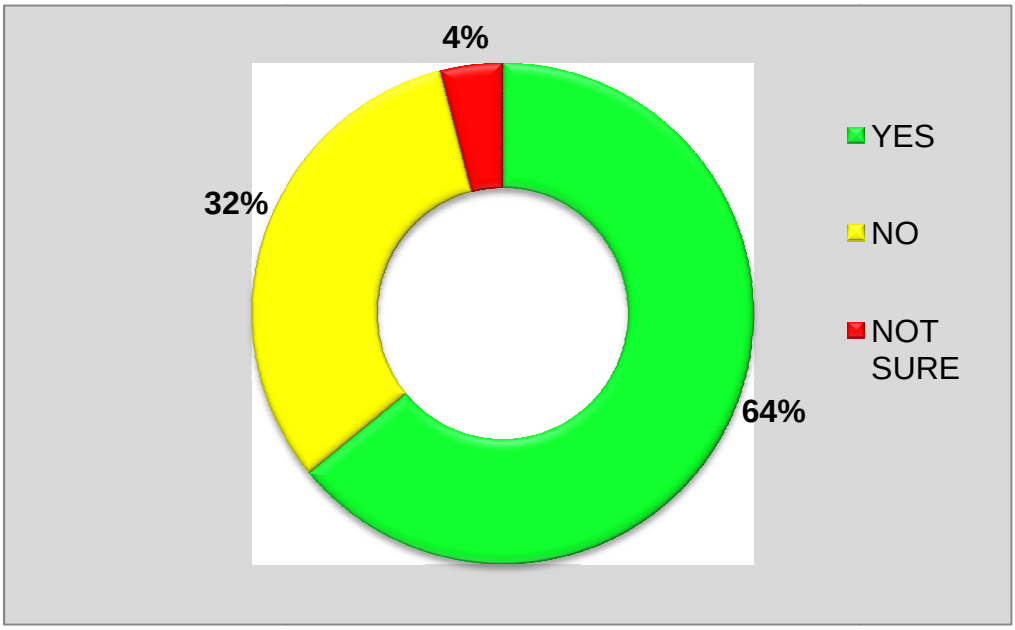

Figure 4.11: Trial of hearing aids before the final selection.

Figure 4.11 indicates that 64% of the subjects were allowed to try on different hearing aids during the hearing aid evaluation, while 32% were not given the opportunity to try on different hearing aids. Four percent of the subjects were not sure if they were given the opportunity to choose between different hearing aids.

Hearing aid evaluations should ideally provide the geriatric individual with a hearing loss, with a variety of hearing aids to give the individual the opportunity to make an informed decision (Sandlin, 2000:65). The majority of subjects in this study were giving a prospect of different hearing aids to choose from. There is however a

significant number who were not involved in the decision making process. A minimal number of hearing aids may have been available for selection, therefore these geriatric individuals may not have been involved in the decision making process. When the geriatric individual with a hearing loss is allowed to make a participative decision, he/she is given the ability to select a hearing aid that is the best suited for his/her budget and personal style (Dillon, 2001:257). However, the hearing aids provided to the individual with a hearing loss must be suitable for the specific hearing loss, but can differ in technology, price and physical structure and appearance (Goldenberg, 1996:3). The clinical trials of hearing aids are essential when providing management to the geriatric individual with a hearing loss (Valente, 2007:122). The trail sessions need to combine the geriatric individual with the hearing loss and the family (Sandlin, 2000:602).

In South Africa the geriatric individual with a hearing loss may seek assessment and management at a private audiologist or at a public audiologist. Approximately 2461 speech-language therapists and audiologist are registered with the Health Professions Council of South Africa (Swanepoel, 2006:264). The geriatric individual with a hearing loss who attends the public hospital setting will have a limited number of hearing aid choices available (Seedat, 2008). There is a limited state tender list of hearing aids that are available to the geriatric individual with a hearing loss. The hearing aids are only available for trial if the hearing aid companies supple the government hospitals with demonstration hearing aids (Seedat, 2008). The audiologists who work in the private sector are given the opportunity to loan demonstration hearing aids for the geriatric individuals with a hearing loss, from the hearing aid companies (Stoop, 2007). The 32% of subjects in this study, who were

not given the opportunity to trial different hearing aids, may have attended an audiology department with no demonstration hearing aids available.

4.3.1.11 Types of hearing aids available

This description includes the responses of the subjects on question 11 in section B of the questionnaire. Figure 4.12 illustrates the results obtained regarding the subjects awareness of the types of hearing aids available.

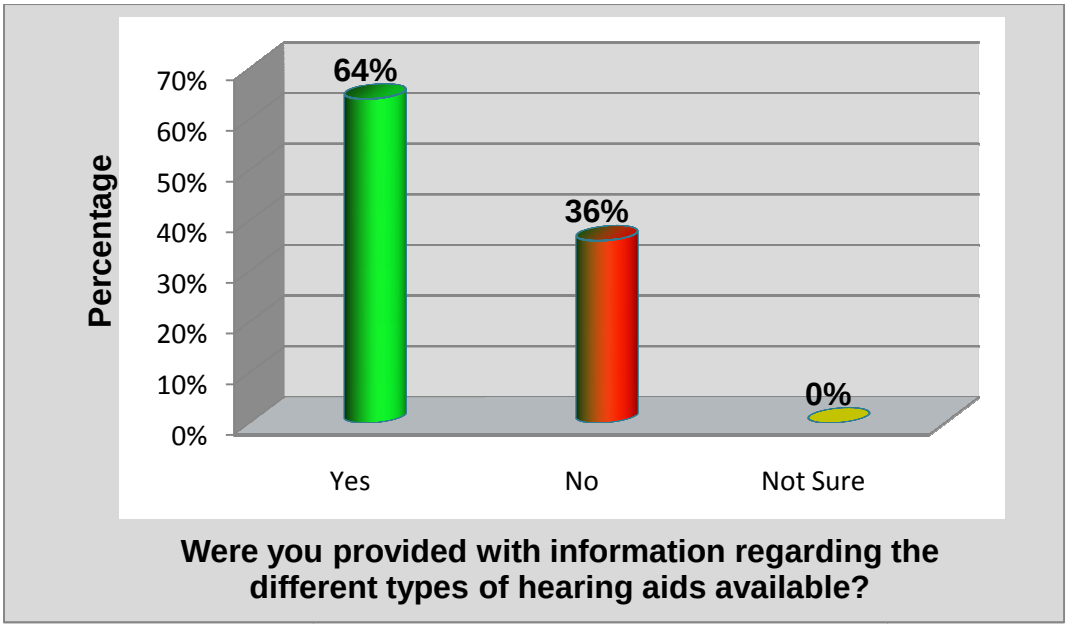

Figure 4.12: Percentage of population who were given information regarding the types of hearing aids available.

The study revealed that 64% of the subjects were informed about the different types of hearing aid styles that are available. As depicted on Figure 4.12, the remaining 36% were uninformed with regards to the different types available. The type of hearing aid selected for the geriatric individual with a hearing loss must be suitable to the individual's lifestyle (Northern & Downs, 2001:308).

There are three basic hearing aid fittings, namely behind the ear (BTE), in the ear (ITE) and completely in the canal (CIC) (Burkey, 2006:65). With the development in technology it is now possible to manipulate the three basic fitting and tailor the hearing aids to specific hearing losses. The BTE can be changed from a closed ear mould fitting to an open ear mould fitting therefore modifications can be made if difficulties arise from the initial fitting. The ITE can be made in a full concha or a half concha mould thereby providing the geriatric individual with additional fitting options. The individual with a hearing loss can now choose a hearing aid that is suitable and appealing to him/her (Dillon, 2001:353). It is imperative to make the individual with a hearing loss aware of the different types of hearing aids available and why they are suitable or unsuitable for the individual. This gives the geriatric individual control over the type of hearing aid style preferred. Individuals with a hearing loss should be able to choose hearing aids that are realistic for their hearing impairment, the hearing aids selected must be significant in terms of benefit and performance for the individual with a hearing loss.

South African government health care facilities that provide audiological services are given the opportunity to select different styles of hearing aids that are limited to the state tender list (Seedat, 2009). There is a correlation between the large number of geriatric individuals who were informed about the different styles of hearing aids and the availability of the different styles in the government institutions.

4.3.1.12 Similarities and differences between the different types of hearing aids

This explanation includes the responses of the subjects on question 12 in section B of the questionnaire. Figure 4.13 graphically represent if the subjects were provided with information regarding the similarities and differences between the different types of hearing aids available.

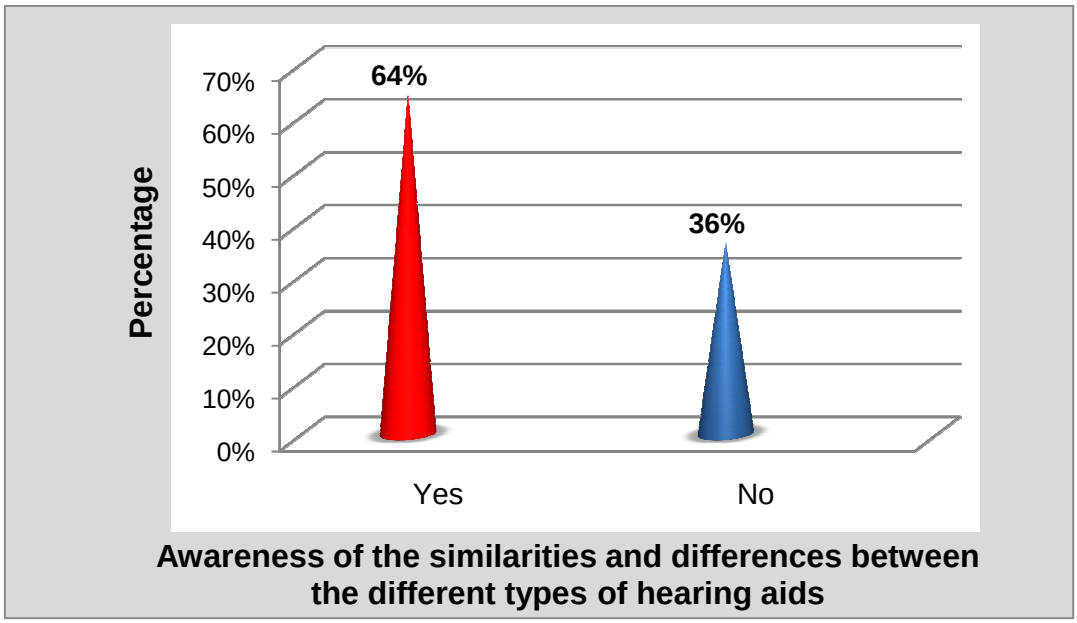

Figure 4.13: Information provided regarding the similarities and differences

In correlation with question 11 it was established that 64% of the subjects were informed about the similarities and differences between hearing aids. It is reiterated that the individuals' acceptance and understanding with regards to the hearing loss and the different amplification devices available, plays an important role in the acceptance and usage of the aid (Burkey, 2003:27). Individuals with a hearing loss should be allowed to make personal choices between different hearing aid technology, style, colour and size of hearing aids (Sandlin, 2000:60). These choices will ensure that the geriatric individual with a hearing loss is actively participating in

the selection process. Therefore hearing aid use is increased (Cox, Alexander & Gray, 2007:153).

4.3.1.13 Explanation for the hearing aids selected

The elucidation of results includes the responses of the subjects on question 13 in section B of the questionnaire. Figure 4.14 indicates the percentage of individuals with a hearing loss who were provided with an explanation of why the specific hearings were selected.

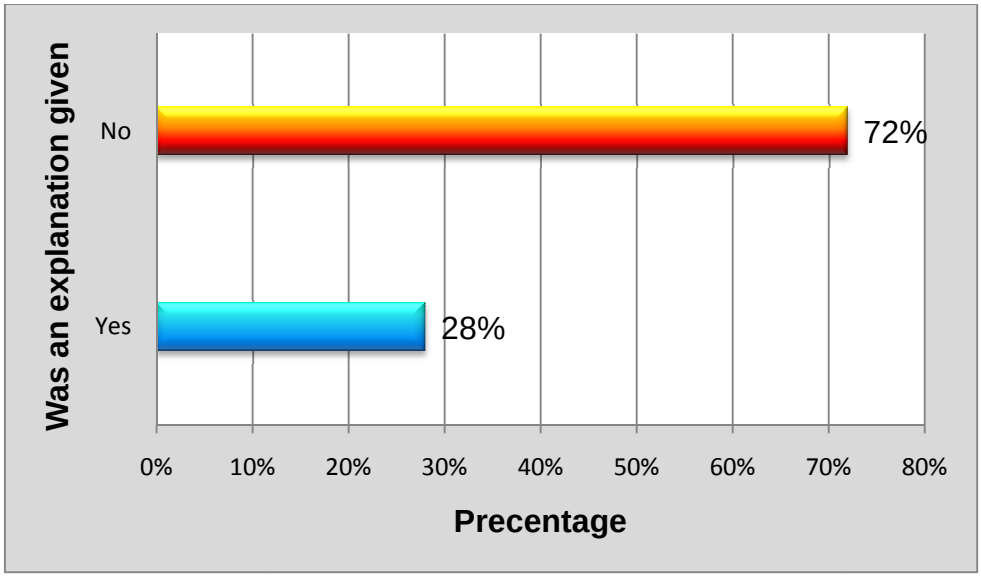

Figure 4.14: Explanation for the hearing aids selected

According to Figure 4.14 72% of the subjects did not receive any explanation for the selection of their specific hearing aids while 28% had an understanding of why the aids were chosen. Individuals with a hearing loss must be involved in the decision making process. They should be provided with all the information and should not be managed without an explanation. This allows the individual with a hearing loss the opportunity to make an informed decision about the hearing aids selected (Cox et. al., 2007:153).

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In South Africa government hospitals there is a shortage of audiologists in comparison with the large number of individuals who require audiological services (Swanepoel, 2006:264). The time spent in during a typical hearing aid selection session in a government institution is approximately 30 minutes (Seedat, 2009). Only the most important and relevant information such as cost, style and technology, is provided to the individual with a hearing loss during the selection session (Seedat, 2009). It is evident that audiologists who work in the government setting have immense pressure to assess and manage a large percent of the population during restricted time periods. Therefore it can be surmised that the 72% of subjects in this study were not given an explanation due to the limited time provided for the hearing aid selection session in government institutions. It is however noted that these time constraints did not affect the 28% of individuals who were provided with an explanation. A possible reason for this finding may be eluded to the use private audiologists who may have more flexible time constraints.

4.3.1.14 Geriatric individual's satisfaction with hearing aids received

This exposition includes the responses of the subjects on question 14 in section B of the questionnaire. Figure 4.15 indicates the percentage of geriatric individuals who were satisfied with the hearing aids when they arrived.

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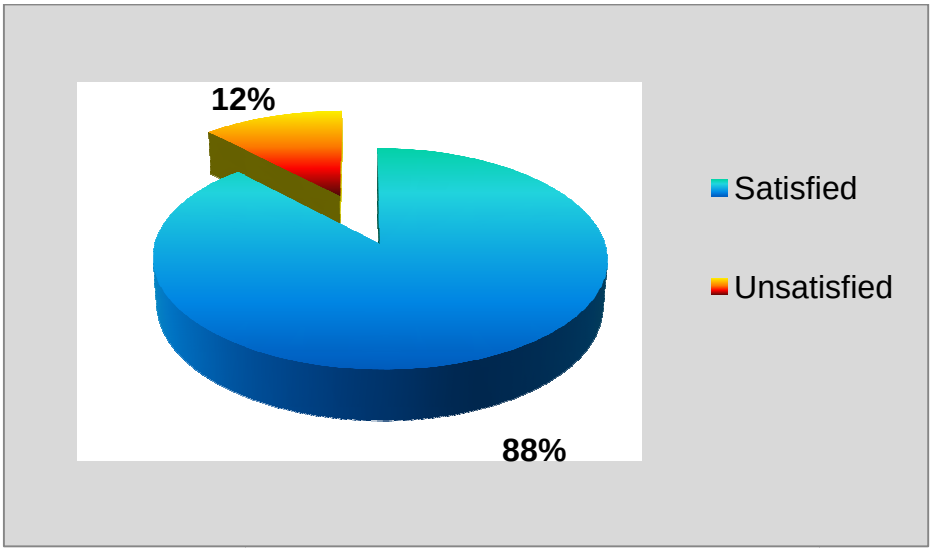

Figure 4.15: Satisfaction with hearing aids

As depicted in Figure 4.15 88% of the subjects were satisfied with the state of the hearing aids when the hearing aids arrived. The remaining 12% stated that they were unhappy about various issues. Aspects that were noted in this study include the following:

- The size of the hearing aid: The hearing aids were bigger than expected, they were visible to others and they were not cosmetically appealing.
- The colour of the hearing aid: The hearing aids did not blend with the individual hair colour, the choice on the colour card was different from the hearing aids.
- The fitting of the aid in the ear: The hearing aid was too small, it was dislodged easily; the hearing aid was big and hurt the inside of the individuals ear canal.
- The flimsy components of the aid: The battery door broke of easily, the volume wheel turn continuously.

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In government institutions in South Africa, the state tender constricts the hearing aid choices that are available to the geriatric individual with a hearing loss (Seedat, 2008). These constrictions maybe the rationale for 12% of the subjects in this study, not being satisfied with the hearing aids selected. The limited choice of hearing aid size and colour is evident; however there is no solution to this dissatisfaction in the government audiology departments (Seedat, 2009). The need for amplification overrides the need for cosmetically appealing hearing aids at the government institutions.

4.3.1.15 Hearing aid orientation

This description includes the responses of the subjects on question 15 in section B of the questionnaire. Figure 4.16 indicates the percentage of individuals with a hearing loss who were participated in a hearing aid orientation session.

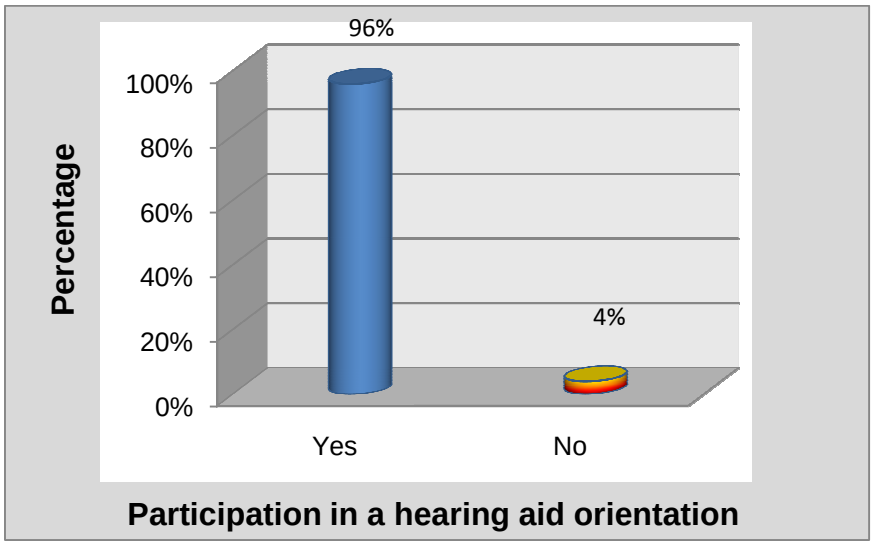

Figure 4.16: Hearing aid orientation

Figure 4.16 illustrates that four percent of the geriatric individuals were no involved in a hearing aid orientation session. These geriatric individuals were fitted with the hearing aids and sent home. These subjects did not receive an explanation of the different components of the aid. Audiologists have a responsibility to provide hearing aid fittings that yield the best possible “benefit” and “satisfaction” to ensure that the geriatric individuals use the hearing aids provided (Burkley, 2006:86). The hearing aid user should feel comfortable with the hearing aid dispensed. There should be a demonstration of the different components and how they function (Hull, 2001:229). It is essential to demonstrate the proper manner of insertion of the hearing instrument. The user should be equipped with instructions to operate the hearing aid as well (Valente et. al., 2000:424).

It is evident that 96% of the subjects were provided with a hearing aid orientation session. The South African government audiology departments have strict time constraints however it is commendable that the majority of the subjects in this study were involved in an orientation session. These audiologists are ensuring that the geriatric individual with a hearing loss is given the opportunity to learn about the newly fitted hearing aids (Hull, 2001:230).

4.3.1.16 Ear mould fitting

The discussion of results includes the responses of the subjects on question 16 in section B of the questionnaire. The percentage of individuals with a hearing loss who were satisfied with the ear mould fitting is depicted in Figure 4.17.

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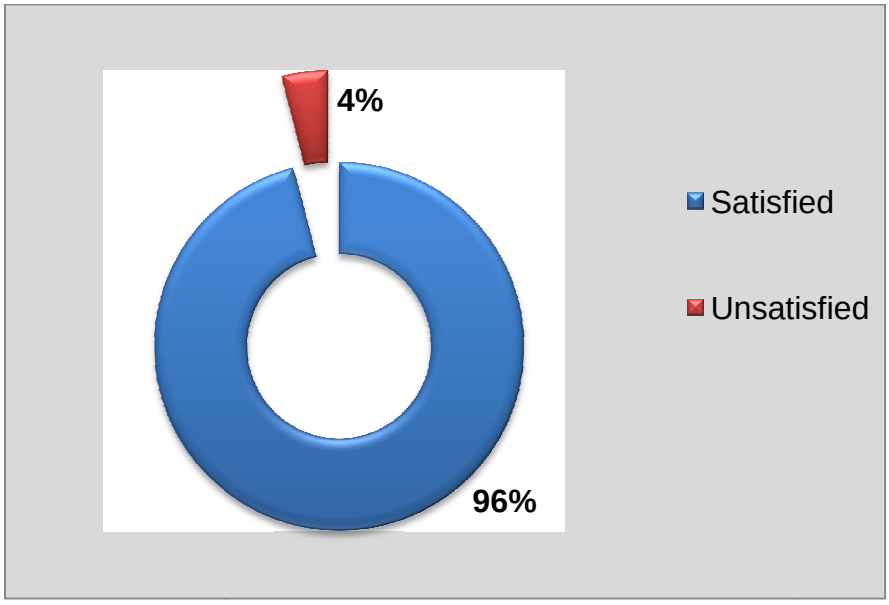

Figure 4.17: Satisfaction with the ear mould fitting

As illustrated in Figure 4.17 four percent of subjects were despondent about the ear mould fitting; two indicated that the ear mould needed to be remade twice as it was too big for the ear canal. The other two stated that the ears moulds were too small and it 'whistled' when the volume was increased.

This information possibly indicates that the ear mould impression was not taken appropriately. If the ear moulds were too big, the audiologist pressed the impression in the ear to make a 'tight' impression and thereby changing the shape of the ear canal. Audiologists should not in any circumstance press or flatten the impression in the geriatric individuals ear (Valente, Hosford-Dunn & Roeser, 2008:50). There is evidence that smaller or loose ear moulds are due to shrinking ear mould impression before it reaches the manufacturing company. Impressions shrink when the audiologist incorrectly measures the amount of catalyst and impression material or if the ear impression is stored for more than 48 hours after being moulded, (Valente et. al, 2008:49).

The study also indicated that 96% of subjects were satisfied with the ear moulds made. It is noteworthy that the audiologists who have taken these impressions were adequately skilled. The proper ear mould fitting plays a significant role in the use of hearing aids by the geriatric individual with a hearing loss (Valente et. al, 2008:50).

4.3.1.17 Hearing aid fitting

This account includes the responses of the subjects on question 17 in section B of the questionnaire. The percentage of individuals with a hearing loss who were satisfied with the hearing aid fitting is depicted in Figure 4.18.

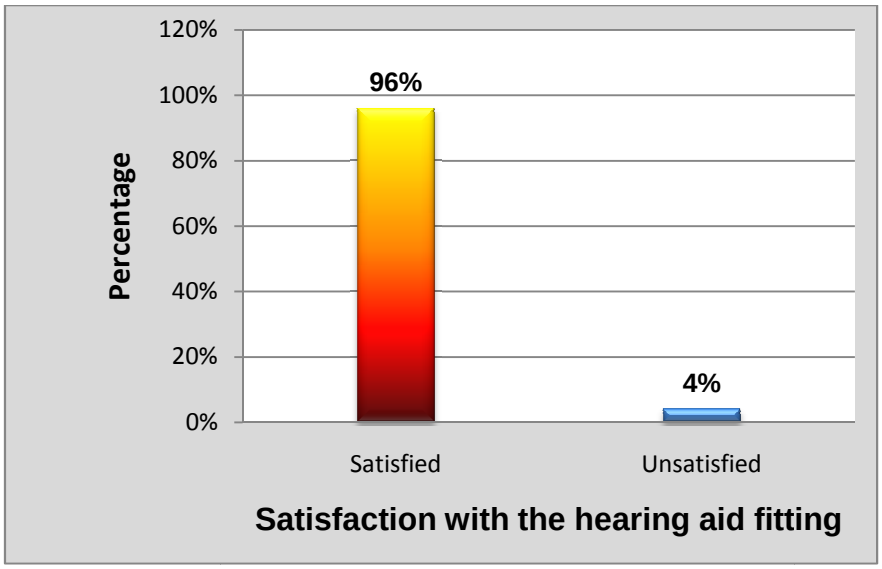

Figure 4.18: Hearing aid fitting

96% percent of the subjects stated that they had no difficulties with the hearing aid explanation. They were provided with a good, clear explanation of the components of the aid, how to maintain the aid and how to troubleshoot. Even the individuals who stated that they were unhappy about the condition of the hearing were happy with the audiologists explanation during the fitting.

In the South African context it is significant that a large number of the subjects were satisfied with the hearing aid fitting. The numerous barriers that exist in the provision of audiological services did not encumber the provision of good service delivery with 96% of the subjects (Swanepoel et. al., 2007:323).

4.3.1.18 Summary of results obtained for sub-aim one

The 50 subjects completed section B of the questionnaire. Extensive information was obtained regarding the assessment procedures conducted by the audiologist during the evaluation of the geriatric individual with a hearing loss. Case history, pure tone air conduction and bone conduction assessment, immittance tests and speech audiometry were sufficiently covered during the assessment of the geriatric individuals with a hearing loss. Therefore is it noted that South African audiologists are conducted diagnostic assessment procedures when assessing geriatric individuals with a hearing loss. A significant 36% of subjects were not provided with a feedback session to explain the results obtained. Subjects were provided with adequate information regarding the hearing aids selected however unique South African barriers played in role in the service delivery provided.

4.3.2 Results and discussion of sub-aim two

THE EXTENT OF INFORMATION PROVIDED TO THE GERIATRIC INDIVIDUAL REGARDING THE HEARING AID.

4.3.2.1 Hearing aid brand

This description includes the responses of the subjects on question 1 in section C of the questionnaire. The percentage of individuals with a hearing loss who has knowledge of the name of the hearing aids worn is depicted in Figure 4.19.

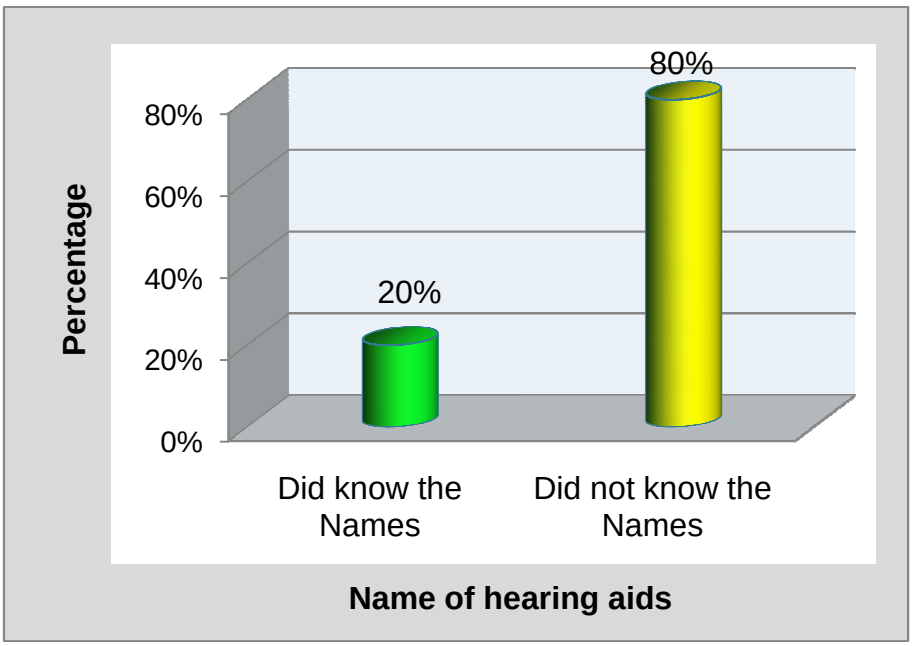

Figure 4.19: Names of the hearing aids worn

According to Figure 4.19, 80% of the subjects were not aware of the names of the hearing aids worn. The hearing aid name provides the user with valuable information; this information is required when sending the hearing aid for repairs and when replacing the hearing aid (Burkley, 2003:139).

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The hearing aid user should know the brand of the hearing aid to ensure that effective services are sort from the necessary hearing aid company. The reasons for this being that hearing aid users may relocate or change audiologists; audiologists may move practices and this hinders the record keeping process. If hearing aids are old and worn out the writing fades on the instruments. The individual with a hearing loss who does not know the name of the aid will not be able to determine who manufactured the hearing aid. A lack of proper hearing aids records makes it difficult to pertain where the aid must to go to for a service or a repair. Audiologists therefore should provide the user with this information during the fitting process.

4.3.2.2 Hearing aid guarantee

This discussion includes the responses of the subjects on question 2 in section C of the questionnaire. The percentage of individuals with a hearing loss who were informed about the hearing aid guarantee is depicted in Figure 4.20.

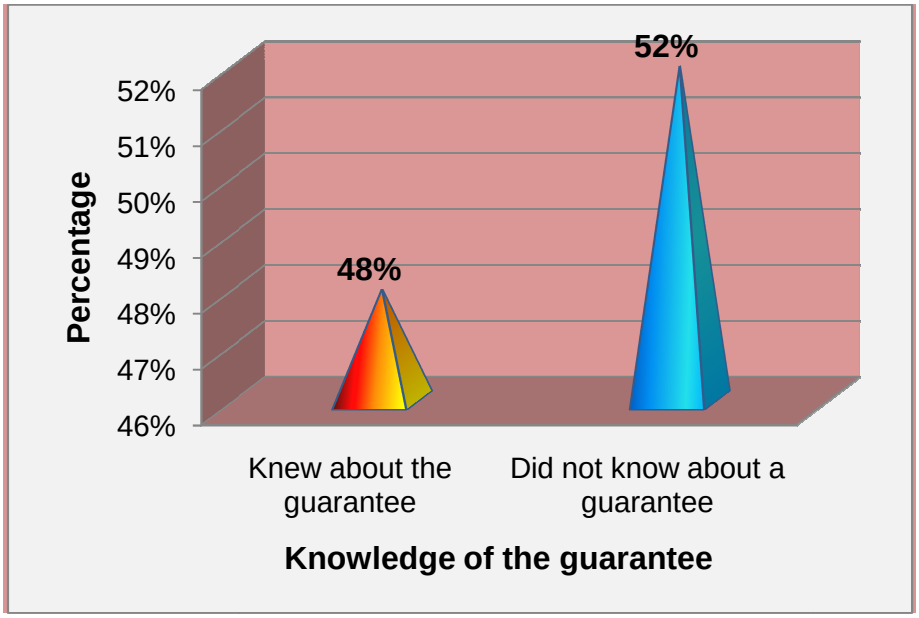

Figure 4.20: Information regarding the guarantee of hearing aids

As illustrated in Figure 4.20 the current study found that 48% of the subjects were provided with information regarding the guarantee of the hearing aids and 52% were not informed about the hearing aid guarantee. It is pertinent to provide the hearing aid user with this information as they must be made aware of the manufacturers' responsibility if the hearing aids stop functioning as required. Hearing instruments can range from R4000.00 to R50000.00. The manufacturer will always provide the audiologist with guarantee periods and they will state a list of instances that will regard the guarantee void (Ackley, Decker & Limb, 2007:281). The individual with a hearing loss is required to have a minimum of 30 days as a 'satisfaction guarantee' (Stoop, 2009). The hearing aid company is liable for any mechanical malfunction of the hearing aids during the specified time limit (Valente et. al., 2000:475). The audiologist is however responsible for informing the individual with a hearing loss about the details of the specific guarantee.

4.3.2.3 Replacing the hearing aid battery

This discussion includes the responses of the subjects on question 3 in section C of the questionnaire. The percentage of individuals with a hearing loss who were able to change their hearing aid battery is depicted in Figure 4.21.

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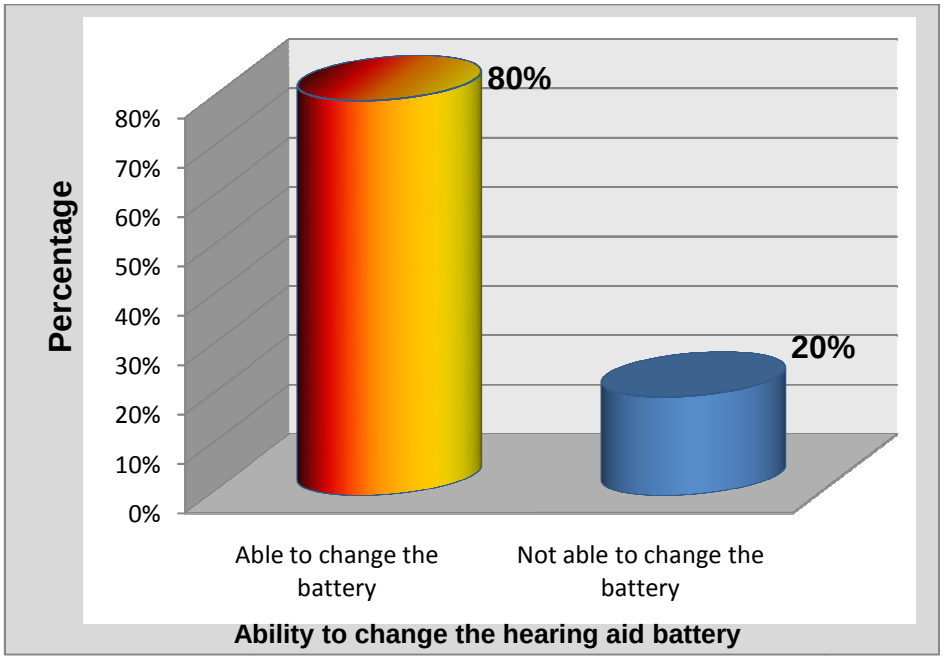

Figure 4.21: Ability to change the battery

As depicted in Figure 4.21 there were 20% of subjects who did not know how to change the hearing aid battery. The remainder of the users (80%) could change the batteries on their own. It is essential to have functioning batteries in the hearing aid in order for it to perform optimally. One of the most common reasons for malfunctioning hearing aids is a dead battery (Scollie & Seewald, 2002:690). Troubleshooting guides usually recommend changing the batteries as the first option to solving the problem. Dead hearing aid batteries are common, it is recommended that the individual with a hearing loss always has a spare pack of batteries at hand as it is highly inconvenient to have hearing aids without working batteries (Carter, 2007:629). The user will not benefit from having amplification that is not working effectively.

The 80% of geriatric individuals', who were equipped to change the hearing aid battery, will be changing the dead hearing aid batteries immediately. It is unfortunate

that 20% of the subjects require assistance therefore these subjects may experience episodes of no amplification.

4.3.2.4 Frequency of hearing aid battery replacement

This argument includes the responses of the subjects on question 4 in section C of the questionnaire. The frequency of changing the hearing aid battery is depicted in Figure 4.22.

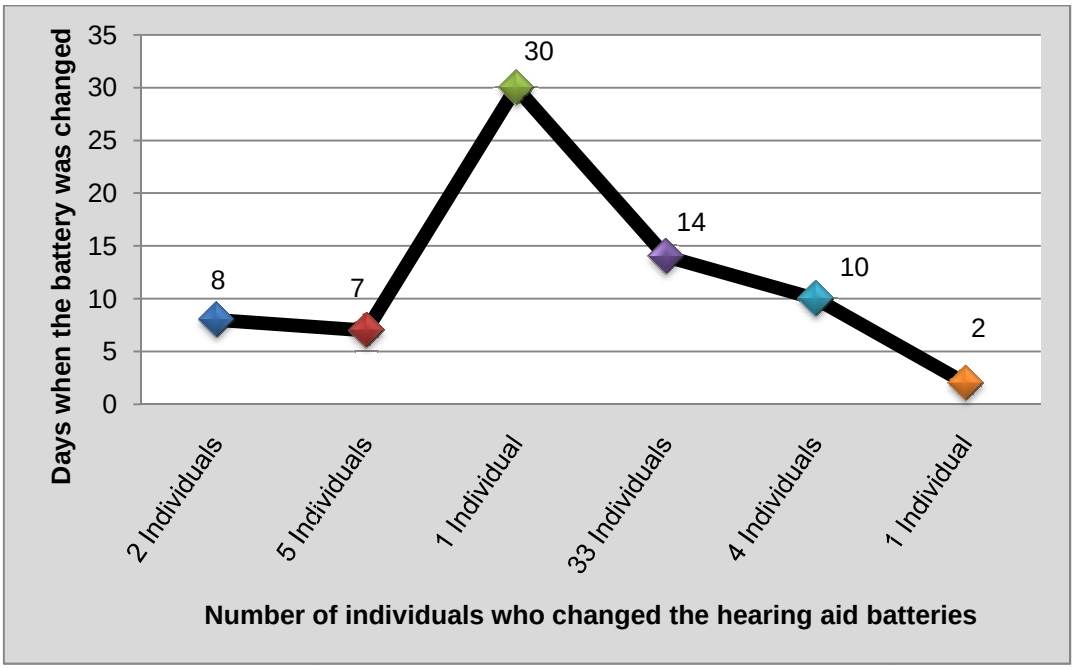

Figure 4.22: Changing of new batteries

As depicted in Figure 4.22 this study revealed a range of answers from users, regarding the frequency of battery changes. There were two geriatric individuals who changed their batteries every eight days, five individuals who changed them every week, one individual who changed the battery every month. 33 individuals changed the battery every two weeks, four individuals changed the batteries every ten days, one participant changed it every two days and four participants could not remember how often the battery needed to be changed. The geriatric individuals can purchase

hearing aid batteries for approximately R40 per card. Each of these cards consists of six batteries. The hearing aid user who has bilateral aids will require a new card every six weeks. Hearing aid manufacturers state that battery life of hearing aids range from two to three weeks depending on the frequency of usage (Burkey, 2003:137).

When completing question 4, there were numerous verbal comments about the price of batteries. The geriatric individuals stated that the cost of replacing these batteries have become a 'burden'. The price of batteries have played a major role in the usage of the hearing aids on a constant basis as subjects indicated that they refrain from wearing the hearing aids to often to preserve the batteries. They mentioned that they would like the hearing aid manufacturers to develop rechargeable batteries for the hearing aids. Rechargeable hearing aid batteries have been available for many years but only in size 13 and 675, (Valente et. al., 2008:10).

In South Africa however the production of rechargeable hearing aid batteries are rare and expensive when available (Business & Economics, 1996:23). According to the Botswana United Nations report in 2005, Botec has developed a solar powered hearing aid and solar powered batteries (UN, 2005:45). This development, once finalised will transform the manufacturing of hearing aids worldwide. A report in 2005 on the U.S Trade and investment policy stated that the Botswana project has made a significant impacted of the hearing impaired society in the region as consumers now have a more cost effective hearing aid (Trade and investment, 2005:50). Godisa, the company that developed this remarkable hearing aid has been awarded many international quality awards and is now distributing this hearing

aids and batteries to about 20 nations in Africa and globally. There are positive implications for the South African geriatric population with a hearing loss. There will be an increase in the ability to wear hearing aids more frequently as hearing aid batteries would be affordable.

4.3.2.5 Care and maintenance of the hearing aid

This discussion includes the responses of the subjects on question 5 in section C of the questionnaire. The geriatric individuals' perception of care and maintenance of hearing aids is depicted in Figure 4.23.

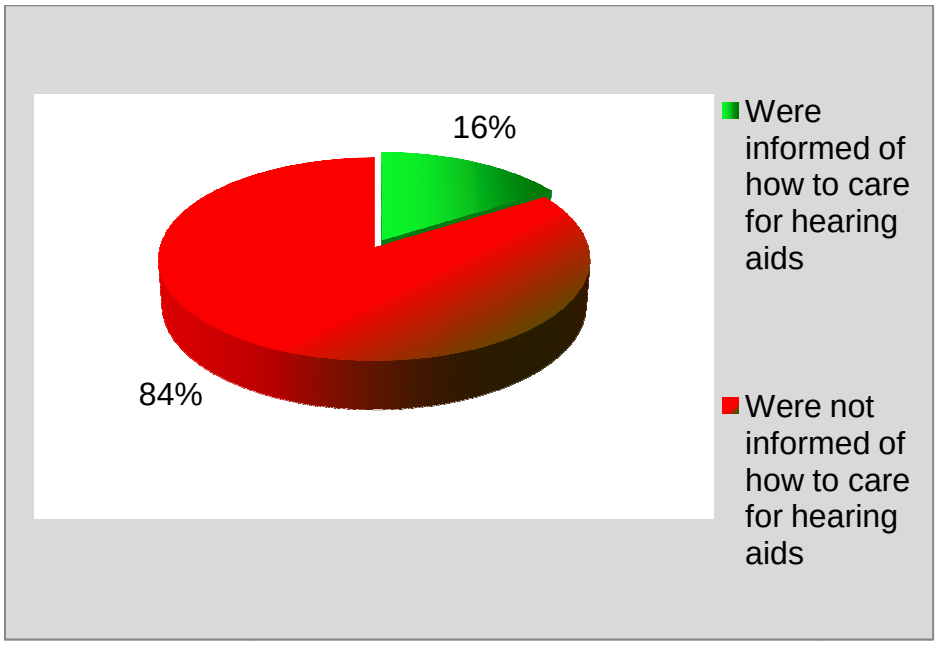

Figure 4.23: Care and maintenance of hearing aids

Figure 4.23 depicts that 84% of subjects were informed of how to care for their hearing aids. These subjects could describe and demonstrate how to appropriately clean the hearing instruments. Hearing instruments need to be cleaned on average every two weeks to ensure proper hygiene (Sandlin, 2000:447). The hearing aid user

needs to ensure the aid is clean and maintain good hygiene to avoid blockage of the ear mould with wax. When hearing aids are filled with wax it hinders the transmission of sound from the hearing aid to the ear (Burkey, 2003:69). Hearing aid care and maintenance is necessary as hearing aids are fragile but highly important, (Wold, 2003:137). Ear moulds worn by geriatric individuals must be washed in a basin with warm soapy water to ensure that blockages are removed (Mulder, 2007:185). The hearing aid and ear mould must be wiped and dried before use (Mulder, 2007:185).

In the South African context, it is noted that shortage of health care staff will impact on service delivery. However the geriatric individual with a hearing loss must be given a description of the proper method to care for and maintain the hearing aids. The non-use of hearing aids maybe attributed to the lack of information regarding maintenance of blocked and malfunctioning hearing aids.

4.3.2.6 Malfunctioning hearing aids

This explanation includes the responses of the subjects on question 6 in section C of the questionnaire. Figure 4.24 displays the procedures followed by the geriatric individual with a hearing loss, when the hearing aid malfunctions.

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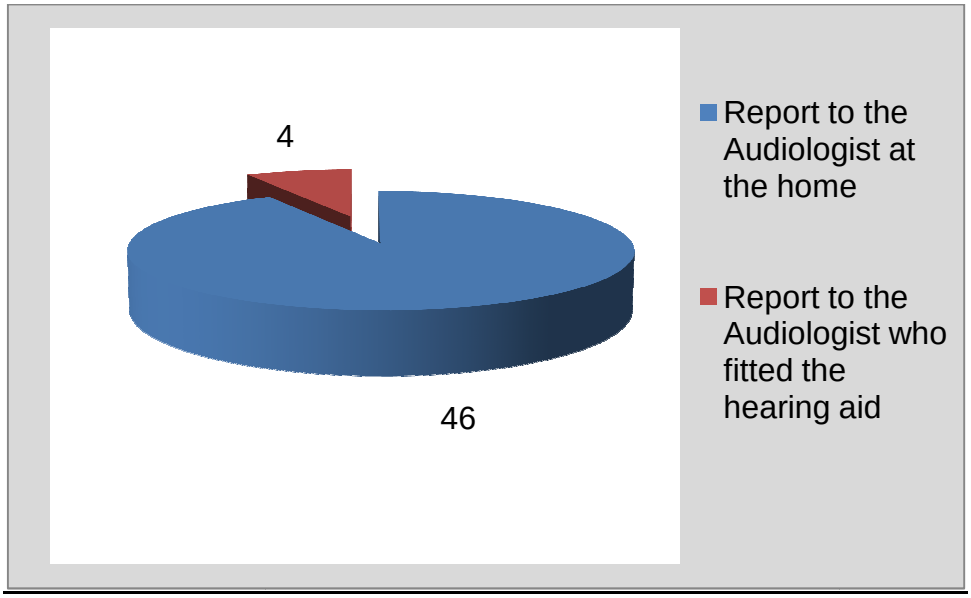

Figure 4.24: Procedures followed when the hearing aid malfunctions

All the subjects in this study reside in a retirement home with a full time audiologist based at the home. As displayed in Figure 4.24 a large number of subjects, 46 of them, go to the resident audiologist, when a problem arises with the hearing aids. The other four subjects take their hearing aids directly to the audiologist who fitted them with the hearing aids.

In this study, the geriatric individuals were fortunate to have an audiologist based at the retirement home. Difficulties experienced by these subjects were assessed and managed by the resident audiologist in a timely manner. It is significant that 4 subjects were referring the difficulties experienced to the audiologist who fit the hearing aids. These results are possibly to the breach of guarantee information presented the subject during the hearing aid fitting session.

4.3.2.7 Summary of results obtained for sub-aim two

Only 8% of the 50 subjects in this study were able to identify the hearing aid brand wore. 48% of subjects were knowledgeable about the hearing aid guarantee available. There were 84% of subjects who stated that they could effectively care for and maintain their hearing aids independently.

4.3.3 Results and discussion of sub-aim three

COUNSELLING AND AURAL REHABILITATION PROVIDED TO THE GERIATRIC INDIVIDUAL WITH A HEARING LOSS

4.3.3.1 Follow up sessions

This description includes the responses of the subjects on question 1 in section D of the questionnaire. Figure 4.25 illustrates the number of geriatric individuals who participated in a hearing aid follow up session.

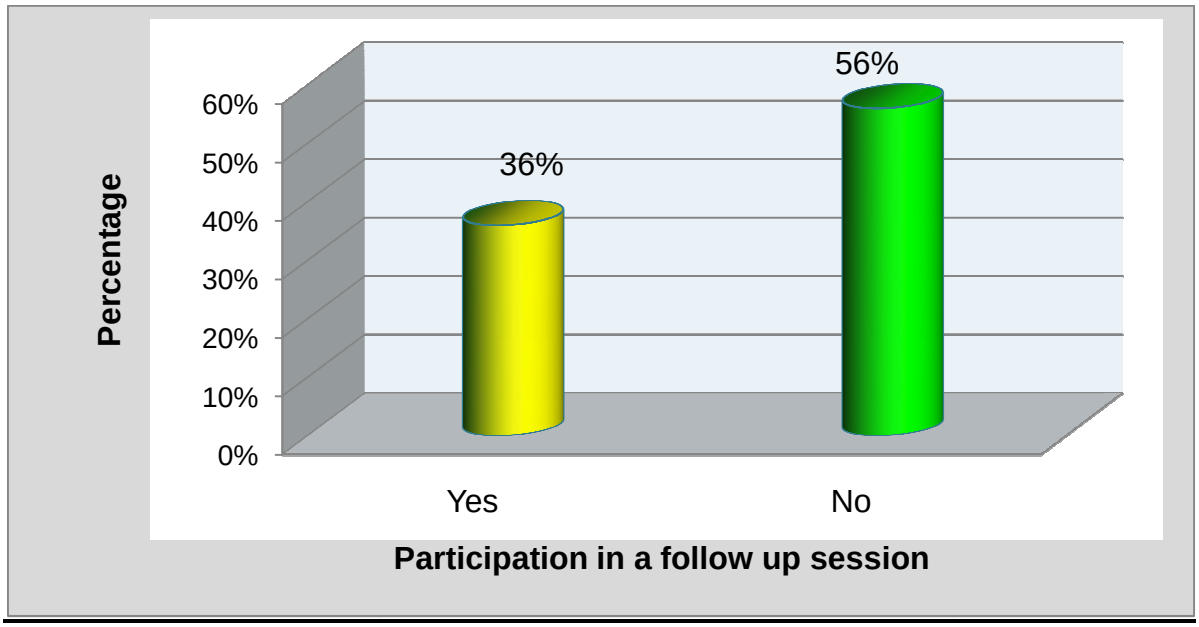

Figure 4.25: Participation in a follow up session

As illustrated in Figure 4.25, 36% of subjects had a follow up visit to the audiologist after the hearing aid fitting and 56% percent did not return to the audiologist. Six percent of the geriatric individuals could not remember if they attended a follow up session. An abundance of information is provided to the user in the fitting session and it is very likely that all the information will not be remembered. Therefore a clear fitting session must be conducted and the user must attend a follow up session (Valente et. al, 2008:119).

Hearing aid users are initially fitted with hearing aids depending on the hearing loss on the audiogram. There should be a follow up for all the geriatric individuals with a hearing loss who are fitted with hearing aids to ensure that fine tuning is conducted after a period of approximately two weeks (Burkey, 2003:66). This space of time allows the individual to trial the hearing aids and to note any difficulties experienced with the hearing aids. There may be specific situations or sounds that were difficult to hear. The follow up session also allows the audiologist to obtain feedback from the geriatric individual with regards to sound quality and comfort. Hearing aid follow up appointments are necessary within two or three weeks after the initial fitting as the geriatric individual with a hearing loss can seek assistance for any difficulties experienced with the hearing aids (Alpiner & McCarthy, 2000:370). The audiologist may provide counselling and support regarding issues experienced by the geriatric individual (Alpiner & McCarthy, 2000:370). It is noteworthy that geriatric individuals with a hearing loss may need additional time to learn the new information regarding the hearing aids therefore follow up sessions ensure that the transfer of information is repeated and it may become more permanent for the individual (Blazer & Steffens, 2009:58)

In South Africa, the lack of finances and transport may affect the scheduling of follow up appointments. Individuals who attend a government hospital may be instructed to return 'only if a problem arises' (Seedat, 2009). There is insufficient time available to schedule follow up appointments that may be ineffective (Seedat, 2009).

4.3.3.2 Opportunity for group therapy sessions

The following discussion includes the responses of the subjects on question 2 in section D of the questionnaire. Figure 4.26 indicates the percentage of subjects who were given the opportunity to participate in a group therapy session.

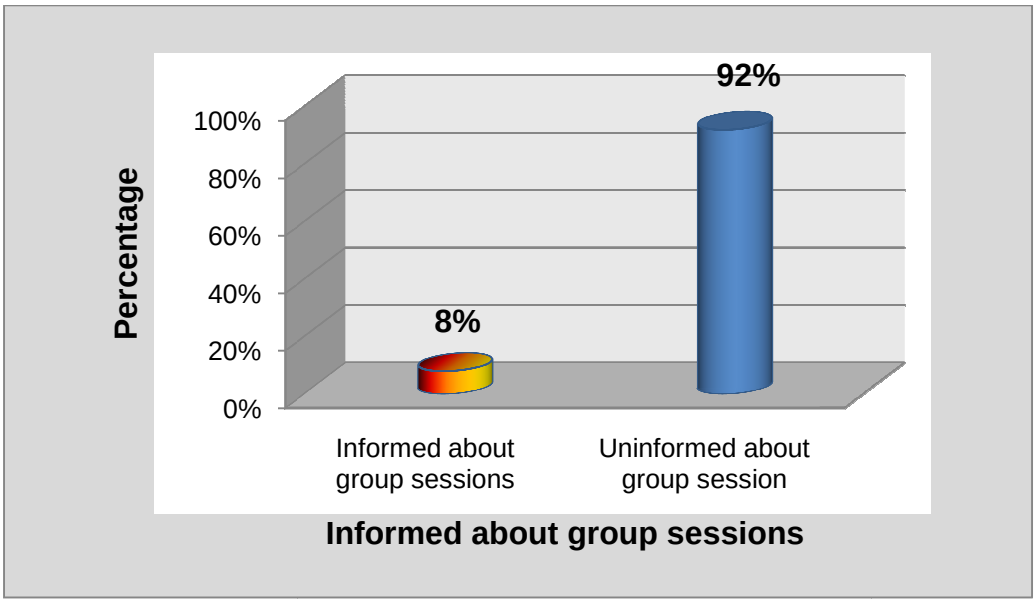

Figure 4.26: Information regarding group therapy sessions

As depicted in Figure 4.26 80% of subjects were informed about group therapy sessions that were available but choose not to participate. There were 92% of 3subjects who were not given the opportunity to attending a group session. Hearing aid users should attend group sessions with other hearing aid users to share information and gain moral support (Weinstein, 2000:29). These group therapy

sessions provide the geriatric individual with a hearing loss, with the opportunity to ask questions and share experiences and ideas. The individual can also be informed of the development in technology and the changes in the hearing instrument industry (Tye-Murray, 2008:7). Group therapy sessions will provide support to enhance communication between the geriatric individual with the hearing loss and the caregiver in homes (Hull, 2001:432). The caregiver will be informed about better placement of furniture and equipment to maximise good communication and how to effectively manage the geriatric individual who wears hearing aids (Hull, 2001:432).

All 50 subjects in this study reside at the retirement home with a full time audiologist based at the home. The majority of individuals who live at the retirement home require special attention and care (Tye-Murray, 2008:494). The residing audiologist may not have sufficient time available to provide the geriatric individuals with a hearing loss, with group therapy sessions as other individuals may requires her assistance on other more urgent matters.

4.3.3.3 Group therapy sessions

Responses of the subjects on question 3 in section D of the questionnaire are discussed. All fifty subjects stated that they were not currently involved in any group sessions or aural rehabilitation sessions.

All subjects reside at the retirement home and group therapy is not offered at the site. Audiologists who initially fitted these subjects may be located in different areas that are inaccessible to the geriatric individual with a hearing loss, who lives at the retirement home.

4.3.3.4 Benefit from group therapy sessions

This exposition includes the responses of the subjects on question 4 in section D of the questionnaire. Figure 4.27 indicates the percent of subjects who perceive that they would benefit from group therapy sessions.

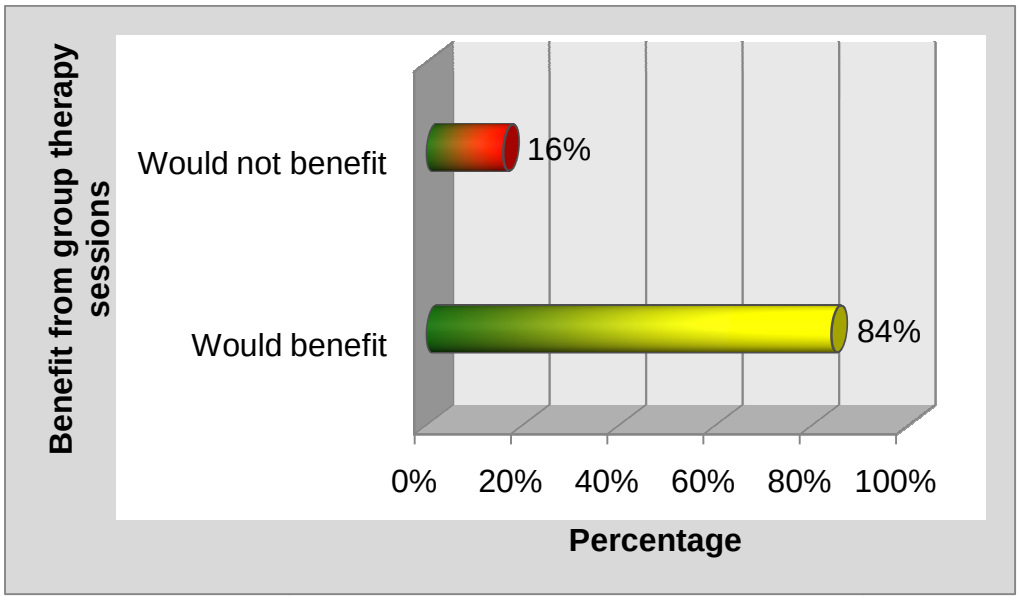

Figure 4.27: Perceived benefit from group therapy sessions

As depicted in Figure 4.27, 84% of subjects perceived that they would have benefitted from a group therapy session. 16% did not think they would have benefitted from these sessions.

The t-test was utilised to determine the statistical significance of the perceived benefit for group therapy session, between males and females in the study (Extract One). The results from the T-test revealed no statistical difference between the two groups in the study.

The 84% of subjects in this study, who perceived that they would benefit from group therapy, may enjoy sharing and learning from others experiences (Tye-Murray, 2008:517). It is evident that the majority of subjects were willing to participant in the activity if it was available.

4.3.3.5 Summary of results obtained for sub-aim three

56% of subjects in this study were not involved in a follow up session. A significant 92% of subjects were unaware and uninformed about support group session available, when fitted with the hearing aids. However, 84% of subjects thought that they would benefit from a group session if it was available.

4.4 RESULTS PHASE TWO

The focus group discussion was utilised to provide valuable information to the researcher about the thoughts and feelings of the participants with regard to audiological service delivery.

Sub-aim four and sub-aim five were utilised to discussion the results obtained in phase two of this study. There were seven participants who participated in the focus group discussion. The focus group results will be discussed according to themes that were established during the focus group session. Figure 4.28 illustrates the themes discussed in the ensuing discussion.

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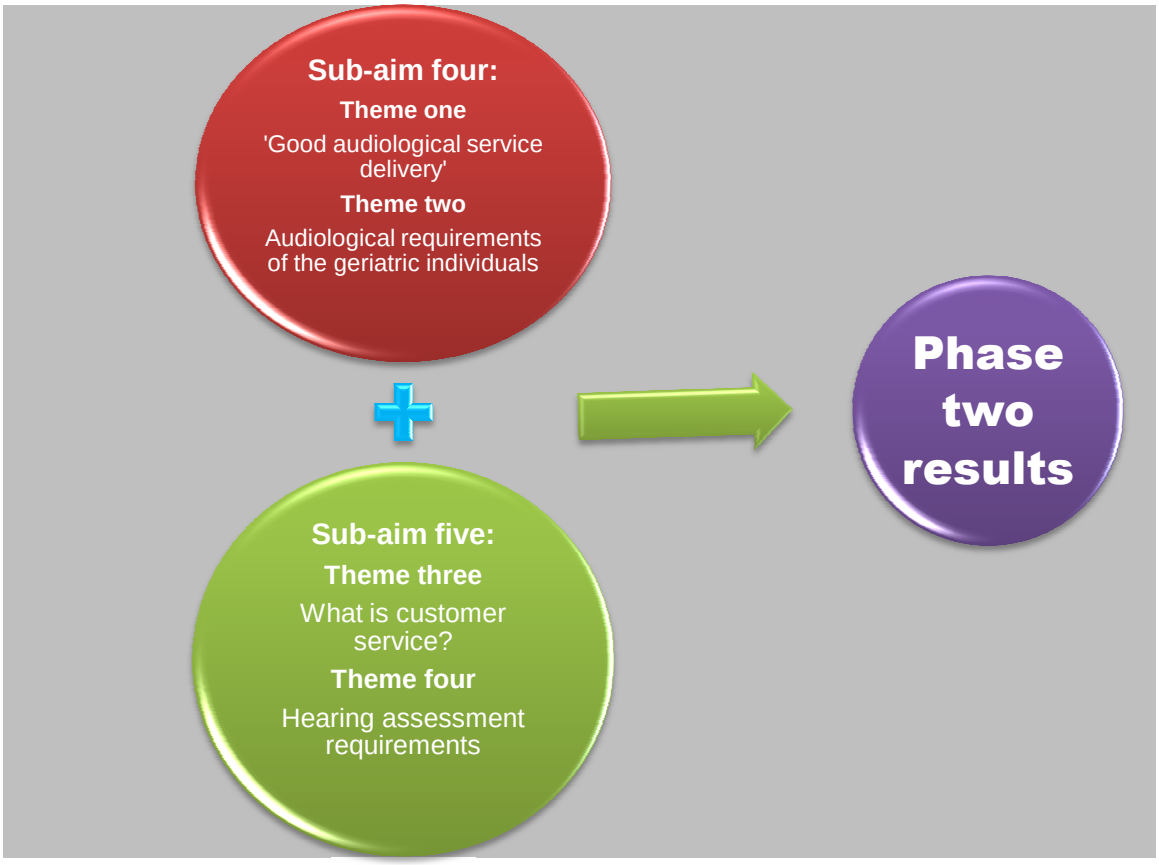

Figure 4.28: Themes of phase two

Figure 4.29 provides a graphic description of the themes used to discuss sub-aim four and sub-aim five of the study.

4.4.1 Theme one

'GOOD AUDIOLOGICAL SERVICE DELIVERY'

All participants perceived the audiological services received as 'good'. There were no significant difficulties experienced by the participants.

Participant 3	*: Yes very good, no problems. Except that i lost more of my hearing. They tried to help me get new hearing aids*
Participant 5	*: Oh yes, (nodding) the service was good but its my ears. Ya I hear but I can't make out what's being said.*
Participant 4	*: It wasn't working at first when they fitted it (hearing aids), they had to send it back. It was too sharp. Yes it was (better after it*

	came back).
Participant 6	*: Yes (the service was good) but the hearing aid batteries are a problem. I can't get batteries that last longer.*

The South Africa audiologist faces challenges such as language, culture and ethnicity which may affect adequate service delivery. The results obtained from the geriatric individuals in this study indicates that in spite of these challenges, South African audiologists are providing 'good' service delivery to their clients.

4.4.2 Theme two

AUDIOLOGICAL REQUIREMENTS OF THE GERIATRIC INDIVIDUALS

4.4.2.1 Batteries

Participants stated that hearing aid battery life and the cost of batteries are important. There was a consensus that the batteries are too expensive and have a short lifespan. For geriatric individuals with a hearing loss who are pensioners, the cost of hearing aid batteries has a negative effect on hearing aid usage.

Participant 7	*: When I had it on all the time the battery lasted 2 days. The other time I was wearing a watch that a 15 year battery, so I went to the jeweller and asked him if that battery will fit my hearing aid. It lasted about a month.*

Participants have suggested that the quality of batteries can be improved to last longer. It is costly and manufacturers should ensure that the lifespan of the batteries are realistic for people who may not have sufficient money for regularly purchasing hearing aid batteries. In South Africa hearing aid battery chargers are rare and expensive when available (Business & Economics, 1996:23). Therefore the cost of regular hearing aids needs to be acceptable for geriatric individuals.

4.4.2.2 Cerumen management

Wax management is a setback for hearing aid use with these geriatric individuals with a hearing loss. Participants indicated that they required regular, almost monthly wax management. One participant implied that the impacted wax affects hearing sensitivity and syringing is required immediately. It is time consuming and costly to visit the doctor on a frequent basis, however this is the only solution for wax removal to date. Wax in the ear canal is one of the primary contributors to a decrease in hearing sensitivity in the geriatric population, however it can be easy removed and remedied (Gallo, 2006:292)

4.4.3 Theme three

WHAT IS 'CUSTOMER SERVICE'?

All participants had a general consensus that 'customer service' was link to good services provided to the consumer. The main point that the participants made, was that the consumer has the 'right' of good services where every the go.

Participant 2	*:I believe that I'm getting the best services and that I am getting the benefit.*
Participant 3	*:'Customer Service' I would say that the customer is always right.*
Participant 6	*:Good service from the company and it does not matter where or what it is.*
Participant 4	*: That I find somebody to help and they are there to help me.*
Participant 5	*:There is no customer service, you gotta help yourself, if you want to buy something there is nobody to ask where it is or anything. It is absolutely more difficult with the hearing loss. Give me the old fashioned shop any day. Now they are all too busy to hear what we say.*

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The South African budget gives greater impetus to social development and public service delivery, continuing the strong focus on reducing poverty and extending basic services to all South Africans. Support is targeted to a wide range of expanded programmes in housing, education, health, skills development, social security, justice and fighting crime *(*Budget Document 2006: 107). Services within the health care sector have been allocated funds to improve health care facilities and service delivery. The current study revealed that participants believed in the customers right to good service delivery in all environments but they were sometime disappointed at the lack of assistants to help the geriatric customer. The needs of the geriatric person is not met in these situations, within the field of audiology, it is imperative to consider the geriatric individuals' needs, thoughts and feeling when assessing and managing these individuals.

4.4.4 Theme four

HEARING ASSESSMENT REQUIREMENTS

Participants have indicated that they regard all diagnostic tests within the test battery as being equally important. There was a participant who stated that the speech assessment conducted was specifically important to him.

Participant 2	*: All of it is important, the whole test procedure.*
Participant 4	*: All the aspects are equally important.*
Participant 7	*: I suppose you got to be tested first to find out what the problem is, but then what happened to me was that I went for the test and the lady put the thing in front and I couldn't see. (he is speaking about SRT and SDT). Well lets put it to this, someone said to me that the sooner we learn sign language the better.*

All the participants stated that they would willingly refer a friend to their audiologist. There was great trust revealed by the participants, in the audiologists ability to access and manages a hearing loss.

Participant 2	*: Yes i would*
Participant 4	*: Yes definitely if she is having difficulty hearing.*

The participants in this study perceive that the audiologist performed the tests required and all participants would refer a friend to their audiologist.

4.5 SUMMARY

This two phase study provided information regarding the assessment and management procedures conducted on 50 geriatric individuals with a hearing loss. The results obtained from the geriatric individuals will assist the South African audiologist when providing services to this unique population. The focus group discussion gives the audiologist a distinctive geriatric perspective, regarding audiology services received.

CHAPTER 5

CONCLUSIONS

5.1 CONCLUSIONS

5.1.1 Test procedures covered

The 50 subjects were able to provide valuable information about the procedures conducted by the audiologist during the hearing assessment and hearing aid evaluation. It was evident that the majority of subjects were given the opportunity to express their thoughts and feelings during a lengthy case history interview. 84% of subjects stated that they were involved in a verbal case history interview session; there is evidence that audiologists are taking the time to listen to what difficulties are experienced by the geriatric individuals on an individual basis. The verbal case history interview conducted by the audiologist will ensure that relevant information about the audiological condition is determined; it will aid the audiologist in devising a specific clinical strategy for the geriatric (Stach, 1998, 2008:167). A substantial number of subjects were not given an explanation about the test procedures that were required. This may cause anxiety and stress to the geriatric individual who is undergoing the assessment. The audiologist who gives amply information to the geriatric individual before the session commences, will set the individual at easy before the assessment begins.

The use of a questionnaire has been proven to provide substance and additional worth to the case history information, this study revealed that 80% of subjects did not have the opportunity to complete a questionnaire. It is therefore noted that the abundance of subjects may not have had the option to convey information about the

social and emotion aspects of the hearing impairment and its effects, via a questionnaire. More that 80% of subjects stated that the following tests were conducted; air conduction pure tone assessment, bone conduction pure tone assessment, immittance tests and speech audiometry. These results indicate that the 'gold standard' test was completed during the assessment, therefore ensuring that the geriatric individuals were fitted with hearing aids based to diagnostic hearing results.

The feedback session was adequately completed with 64% of the subjects. This ensured that the geriatric individual had an understanding of the results obtained and the implications of the hearing loss. The 36% of subjects who did not have a feedback session were assessed and managed independently by the audiologist with no collaboration from the geriatric individual. The medical model is a 'disease' and 'illness' centered approach, which does not encourage personal understand of the specific individual, (Barbour, 1997:11). The medical model depicts a manner of assessing and managing the geriatric individual using a biomedical framework of assessment and diagnosis, the field of audiology however emphasis the 'client centered or family-centered' approach to assessment and therapy (Hull, 2001:15). The new paradigm of family-centered services is vital when dealing with disability, this model was based on the relationship between the family and the geriatric individual with a hearing loss and it encouraged a unit of support for the individual (Paul, 1994:91). This method put the geriatric individual with the hearing loss at the focal point when making any decisions for management.

After determining the method of rehabilitation, in these cases amplification, it is vital to present the geriatric individual with various hearing aid options and ensure that amply opportunity is given to the geriatric individual to decide on the appropriate hearing aids for his lifestyle. 32% of subjects in this study did not get the chance to trial different hearing aid before purchasing them, 36% were not informed about different styles and variations of hearing aids. These figures reiterate the 'medical model' approach that allows the audiologist the ability to make independent decisions for the geriatric individual without consultation with the respected individual. The geriatric individual is not included in the decision making process even though his life will be affected by the decisions made by the audiologist.

A through session is required for the orientation and care of the hearing aid for the new user. This study revealed that 28% of subjects were not shown how to use and care for their aids. The remaining 72% of the geriatric individuals were fitted and send away with adequate information to function with the hearing aids.

5.1.2 Extent of the hearing aid information provided

The subjects in this study were asked about the names of their hearing aids and only eight percent of the subjects were able to identify the hearing aids name. The hearing aid is usually the link between the world and the geriatric individual with a hearing loss in respect to communication and it was evident that the majority of subjects didn't know the name of this important item. 48% of subjects knew about a guarantee, the remainder were oblivious to the customers' rights available to them. In the case of a broken or malfunctioning aid the geriatric individuals with a hearing

loss, who did not know about the guarantees will possibly have difficulty with the procedures required to return the hearing aids. It was not evident due the line of questioning, what occurred in these instances. 84% of subjects stated that they could effectively care for their aids.

5.1.3 Extent of counselling and aural rehabilitation provided

56% of subjects did not get the opportunity to express their thoughts, feeling, likes, dislikes and experiences with the newly fitted aids. Therefore there is a need for audiologists to improve service delivery after the hearing aid fitting. More audiologists need to ensure that the follow-up session is a routine occurrence with newly fitted geriatric individuals with a hearing loss. A change is required to improve services and increase the geriatric individuals' satisfaction and use with regards to the hearing aids fitted. A significant ninety two percent of subjects were unaware and uninformed about support group session available. Due to this the geriatric individuals' were not given the prospect of joining a group that would be a support structure when accepting and coming to terms with the hearing loss and the hearing aids. It is apparent that the lack of use with hearing aids may stem from difficulties and misunderstandings experienced by the user. Users would have personal support from other hearing aid user in a group setting. Shared understanding and sympathy from an individual who is in a similar situation would be comforting and consoling. It is consequently highly important for the audiologist who is currently dispensing hearing aids to endeavour to form a support group for the geriatric individuals fitted. It is however the geriatric individual's choice to join such a group, it should

nevertheless be available to the individual. In this study it was apparent that 84% of subjects thought that they would benefit from a group session.

5.1.4 Focus Group Discussion

A transcript of the focus group discussion in provided (Extract Two).

Participants in the current study were adamant that the customer is right in all situations. It was also evident that the geriatric population generally experience a lack of customer services as it is difficult to obtain help, especially in a shop situation. As an audiology customer, the geriatric individual with a hearing loss should receive the best service delivery possible, hence ensuring that the customer is happy. All assessment and management areas must be covered thoroughly to improve and enhance service delivery to the geriatric individual with a hearing loss. The present study reveals that the geriatric individual is a vital customer, being the largest age group affected by hearing difficulties. Therefore additional or a progressive systems are required in the field of audiology to transform the service delivery provided to the geriatric individual with a hearing loss.

In the participants' opinion, service delivery received from the respective audiologist was good. Therefore all participants indicated that they would refer a friend to the audiologist that assessment them. It must be noted that the services delivery opinion in this session is based on the participants' feelings of the overall session and not the specific diagnostic procedures performed by the audiologist.

Enlightening points were evident from the focus group question regarding any areas missed or forgotten. The participants stated that the following areas need to be

assessed and improved in the future; battery lifespan, battery prices and wax management. The cost of batteries that last a few days were unacceptable to these geriatric participants. Participants indicated that the lifespan of the batteries are not proportionate to the amount of money available to the majority of geriatric people in South Africa, therefore individuals may choose to not buy batteries and in turn not wear the hearing aids as the money is necessary for other vital requirements. This study revealed that this group of geriatric participants had problems with excessive wax production that hindered the use of the hearing aids on a continuous basis. Due to this finding it is essential that audiologists consider attending special training in wax management and ear care. Hence illuminating the extra time spent, by the geriatric individual, visiting the general practitioner or ENT for wax removal. The additional training will help the geriatric individual with the hearing loss and the audiologist with regards to time and money.

CHAPTER 6

IMPLICATIONS AND FUTURE RESEARCH

6.1 IMPLICATIONS

A critical review of the current research study is required to highlight the areas that were significant and positive and the areas that were lacking and. This section is required to draw attention to area that need to be reviewed, improved or maintained in the field of audiology.

The first area to be mentioned and critiqued is the participants, all participants were from a specific geographically location hence it is difficult to generalise the results obtained from these participants to other similar participants in South Africa. Participants were all from the same old age home which may affect the responses provided in the study, such as the thoughts and feelings of participants may be affected or influenced by exposure to the same living environment. Participants may have previously discussed issues with each other as the circle of friends are small and overlap of views is common and expected in such an environment.

The participants were however easily accessible in this setting, therefore the results from the study can be used to directly improve any areas of concern. The participants indicated their willingness to attend a group support session on a regular basis and in light of this situation it could easily achieved. All participants were accessible for the focus group session and this was due to their living arrangement, thus making the data collection time short and relatively easy.

The use of a focus group data collection method, proved to be valuable as important information was obtained from the discussion between participants in the study. Therefore supporting the issues identified with the questionnaire.

There is a number of research studies in South Africa pertaining to audiologists views, thoughts, feelings or expectations however there is a marginal, if any, research that determined the thoughts, perspectives or ideas of the main person in the field of audiology, the individual with the hearing loss. The study provided a view from the person that is usually sitting across the table from the audiologist, thereby allowing the audiologist to step back and absorb the utterances by the key role-player in the session, the geriatric individual. Therefore this research study gives the audiologist the opportunity to reflect on services provided to the geriatric individual with a hearing loss.

6.2 FUTURE RESEARCH

- The study can be conducted in different socioeconomic areas in the small province to determine if there is a difference in the responses obtained from geriatric individuals' with a less affluent background.
- The study can also be conducted in different setting throughout the country to obtain a more representative sample of participants.
- It would be interesting to determine why audiologists are failing to provide geriatric aural rehabilitation services; what are their reasons, hindrance or comments around this area.
- If an established geriatric hearing impaired support group is located, it would

be beneficial to compare the perspectives of the individuals who attend these groups to individuals in similar circumstances who were not provided with a support structure.

6.3 SUMMARY

The South African geriatric population has unique needs when assessed and managed by the audiologist. Language, culture and ethnicity are characteristics that may affect service delivery in South Africa. This study revealed that the geriatric individuals were adequately assessed by the audiologist. The geriatric individuals were satisfied with the service delivery received from the audiologist. The results obtained from the questionnaire and the focus group discussion indicated that the geriatric population was provided with adequate service delivery during the assessment and management of the hearing loss. Audiologist in South Africa must however ensure that all assessment procedures are conducted when assessing and managing the geriatric population.

'*When working with speech, language and hearing problems, older persons inevitably constitute a significant portion of the clients seen (Hull,2001:295). Audiologists are the only professions equipped to assess and manage the geriatric hearing impaired population to improve communication, therefore appropriate service delivery is paramount when working with this population. Hull, (2001:11)*

References

- Ackley, R.S. & Limb, C.J. (2007). *An essential guide to hearing and balance disorders.* Routledge.
- Adams, R.H. (2005). *Remittance, household expenditures and investment in Guatemala.* Washington DC: World bank.
- Adesida, O. & Oteh, A. (2004). *African voices, African visions.* Nordic Africa Institute.
- Alpiner, J.G. & McCarthy, P.A. (2000). *Rehabilitative audiology: Children and adults.* Lippincott Williams & Wilkins.
- American Speech-Language-Hearing Association (ASHA). (1998). Guidelines for hearing aid fitting for adults. *American Journal of Audiology,* 7: 5-13.
- Balch, J.F. (2000). *Prescription for nutritional healing: A practical A-Z reference to drug-free remedies using vitamins, minerals, herbs & food supplements.* Prentice Hall Direct.
- Beck, J.C. (2002). *G R S (Geriatric review syllabus), Volume 1 of geriatrics review syllabus: a core curriculum in geriatric medicine.* Wiley-Blackwell.
- Belk, W.R. (2006). *Research in consumer behaviour.* Volume 10. Emerald group. Berg, J.W. & Appelbaum, P.S. (2001). *Informed consent: legal theory and clinical practice.*
- Bess, F.H. & Humes, L. (2003). *Audiology: the fundementals.* Lippincott Williams & Wilkins.
- Bhorat, H. & Kanbur, S.M. (2006). *Poverty and policy in post apartheid South Africa*. HSRC press.
- Blaze, D.G & Steffens, D.C. (2009). *The American psychiatric publishing textbook of geriatric psychiatry.* American psychiatric publishers.

- Boisen, G., Lindemann, L., Lange, K., Horwitz, N. & Parving, A. (1997). Hearing in a geriatric perspective. *Geriatric Journal.* 20: 6362-6.
- Brace, I. (2004). *Questionnaire design: how to plan, structure and write survey material for effective market research.* Kogan page publications.
- Bradshaw, D. & Steyn, K. (2001). *Poverty and chronic disease in South Africa.* Cape town, medical research council.
- Boddy M. (2007:May 28th). The Arthritis foundation. Mike@arthritis.org.za.
- Buck, T.F.; George, T.L.; Turner, J.G. & Vanlinden, N.H.P. (2006). *Content suggestions for universal hearing aid design.* Victorian Deaf Society.
- Burkey, J.M. (2006). *Baby boomers and hearing loss: A guide to prevent and care.* Rutger University press.
- Burkey, J.M. (2003). *Overcoming hearing aid fears: the road to better hearing*. Rutgers university press.
- Burnard, P. (1992). *Writing for health professionals: a manual for writers.* Chapman & Hall.
- Burns, N.; Burns, N. & Grove, S. K. (2005). *The practice of nursing research: conduct, critique, and utilization.* Elsevier health science.
- Burns, N. & Grove, S.K. (2003). *Understanding nursing research*. Elsevier health science.
- Business & Economics. (1996). Appropriate technology. *Intermediate technology publications.* 23-25.
- Carpenito-Moyet, L.J. (2007). *Nursing diagnosis: Application to clinical practice.* Lippincott Williams & Wilkins: Baltimore Maryland USA.
- Cecil, R.L.F.; Goldman, L. & Ausiello, D.A. (2004). Cecil textbook of medicine, Volume 2: 2506.

Pillay, D. (2009). University of Pretoria.

- Chernoff, R. (2006). *Geriatric nutrition: The health professional's handbook.* Jones & Bartlett publishers.
- Cox, R.M.; Alexander, G.C. & Gray, G.A (2007). Personality, hearing problems and amplification characteristics: Contributions to self-report hearing aid outcomes. *Ear and Hearing*. 28: 141-162.
- Craddock,G.M. (2003). *Assistive technology: shaping the future*. IOS press.
- Craik, F.I.M. & Salthouse, T.A (2000). *The handbook of aging and cognition.* Rouledge.
- Crandell, C. & Smaldino, J. (2002). *Classroom acoustics. Paper presented at the American Academy of Audiology National Convention.* Philadelphia.
- Cress, C. (2007). *Handbook of geriatric care management*. Jones & Bartlett publishers.
- Creswell, J.W. (2003). *Research design: qualitative quantitative and mixed method approach.* SAGE publications.
- Dalton, D.S.; Cruickshanks, K.J.; Klein, B.E.; Klein, R.; Wiley, T.L. & Nondahl, D.M. (2003). The impact of hearing loss of the quality of life of older adults. *Gerontologist* 43: 661-8.
- Denscombe, M.(2007). *The good research guide: for small-scale social research projects*. McGraw-Hill international.
- De Vos, A.S. (2002). *Research at grass roots: for the social sciences and human service professions.* Van Schaik.
- Dillon, H. (2001). *Hearing aids*. Thieme.
- Dobie, R.A. & Van Hemel, S. (2004). Hearing loss: Determining eligibility for social security benefits. *Washington, DC: Committee on disability*

determination for individuals with hearing impairments. National research council/National academy of sciences press.

- Edmunds, H. 2000. *The focus group research handbook*. Mcgraw-Hill.
- Erber, N.P; Lamb, N.L. & Lind, C. (1996). Factors that affect the use of hearing aids by older people: a new perspective. *American Journal of Audiology.* 5: 8-11.
- Everatt, D. (2006). Measuring the 'war on poverty' in South Africa's 21 poorest rural and urban nodes. *Strategy and Tactics.*
- Flick, U. (2009). *An introduction to qualitative research.* SAGE publications.
- **Fook, L. (**1999). Hearing impairment in older people: A review. *Postgraduate medical journal.* 76: 537-541.
- Gallo, J.J. (2006). *Handbook of geriatric assessment.* Jones & Bartlett publishers.
- Gelfand, S.A. (2009). *Essentials of audiology*. Thieme.
- Gerris, K. & Lacey, A. (2006). *The research process in nursing.* Wiley-Blackwell.
- Gillham B. (2000). Developing a questionnaire. London: Continuum.
- Gillick M. R. (2006). The denial of aging: perpetual youth, eternal life and other dangerous fantasies. Harvard university press.
- Goldenberg, R.A. (1996). *Hearing aids: a manual for clinicians.* Lippincott-Raven: University of Michigan.
- Groth-Marnat, G. 2009. *Handbook of psychological assessment.* John Wiley and sons.
- Hall, W.J. & Mueller, H.G. (1996). Cengage learning.

- Hanratty, V. & Lawlor, D.A. (2000). Effective management of the elderly hearing impaired: A review. *Journal of public health medicine.* 22. 512-517.
- Harvey, M.A. (2003). *Psychotherapy with deaf and hard of hearing persons: a systemic model.* Routledge.
- Hawking, S. (2004). *Computer resources for people with disabilities: a guide to assistive technologies, tools and resources for people of all ages*. Hunter house.
- Healthwise. (2007). www.healthwise.org. *(Accessed 01 December 2008).*
- Hersh, M.A. & Johnson, M.A. (2003). *Assistive technology for the hearing-impaired, deaf and deafblind.* Spinger.
- Hickson, L. & Worrall, L. (1997). *Hearing impairment, disability and handicap in older people: Critical reviews in physical and rehabilitation medicine.* Delmar learning singular.
- Hodgson, B.B.; Kizior, R.J. & Kingdon, R.T. (1994). *Nurses drug handbook.* W.B. Saunders.
- Hof, P.R. & Mobbs, C.V. (2001). *Functional neurobiology of aging.* Academic press.
- Hosford-Dunn, H.; Roeser, R.J. & Valente, M. (2008). *Audiology practice management.* Thieme.
- Hull, R.H. (1995). *Hearing in aging.* Singular publishing group: University of Michigan.
- Hull, R. (2001). *Aural rehabilitation: Serving children and adults.* Cengage learning.
- Hulley, S.H. (2007). *Designing clinical research.* Lippincott Williams & Wilkins.

- Irwin, D.L.; Pannbacker, M.H. & Lass, N.J. (2007). *Clinical research methods in speech-language pathology and audiology.* Plural publications.
- Jafek, B.W. & Murrow, B.W. (2004). *Otorrino-laringologia.* Elsevier.
- Jamison, D.T. & Bank, W. (2006). *Disease and mortality in Sub-Saharan Africa*.
- World bank publishers.
- Jayanthi, M. & Nelson, J.S. (2002). *Savvy decision making: An administrator's guide to using focus groups in schools.* Corwin press.
- Jerram J. A. K. & Purdy S. C. (2001). Technology, expectation and adjustment to hearing loss: predictors of hearing aid outcomes. *Journal of the American Academy of Audiology.* 12:2 64-79.
- Simon, C.D.; Benson, P.V. & Seaton, J.B. (1997). *Educational audiology handbook*

  A Singular audiology text. Cengage learning.
- Jupp, V. (2006). *The Sage dictionary of social research methods.* Pine press.
- Katz, J.; Burkard, R.F. & Medwetsky, M. (2002). *Handbook of clinical audiology.* Lippincott Williams & Wilkins.
- Kemp, S.T. & Lockey, R.F. (2000). *Diagnostic testing of allergic disease.* Informa health care.
- Kennedy, G.J. (2001). *Geriatric mental health care: A treatment guide for health professional.* Guilford press.
- Kirkwood, T.B.L. & Austad, S.N. (2000). Why do we age? *Nature.* 408: 233-8.
- Klippel, J.H. (2008). *Primer on the rheumatic diseases*. Springer.
- Kumar, R. (2005). *Research methodology: A step-by-step guide for beginners.* SAGE publications.

- Lancaster, J. (2004). *Making time: Lillian Moller Gilbert-A life beyond "Cheaper by the dozen."* Boston: Northeastern University Press.
- Lazzaro, J.J. (2001). *Adaptive technologies for learning & work environments.* ALA editions.
- Leedy, D. & Omrod, J.E. (2001). *Practical research: planning and design*. Merrill Prentice Hall.
- Long, B.C.; Phipps, W.J. & Cassmeyer, V. (1995). *Adult nursing: A nursing process approach.* Elservier health sciences.
- Lupsakko, T.A.; Kautiainen, H.J. & Sulkava, R. (2005). The non-use of hearing aids in people aged 75 years and over in the city of Kuopio in Finland. *European Archives of Oto-Rhina-Laryngology*. 262: 165-169.
- Madell, J.R. & Flexer, C. (2008). *Pediatric audiology: Diagnostic, technology and management.* Thieme.
- Mandela N. (1999). *Annual report*. Nelson Mandela children's fund.
- Martin, A.; Volkmar, F.R. & Lewis, M. (2007). *Lewis's child and adolescent psychiatry: a comprehensive textbook.* Lippincott Williams & Wilkins.
- McCarthy, P. *Hearing aid fitting and audiologic rehabilitation: A complementary relationship.*
- McNamara, T.F. (2006). *Language testing: the social dimesion.* John Wiley and sons.
- McPhee, S.J. & Papadakis, M.A. (2008). *Current medical diagnosis and treatment 2009*. McGraw-Hill professional.
- Medhi, J. (1992). *Statistical methods: An introductory text*. New age international publications.

- Miller, R.W. & Rollnick, S. (2002). *Motivational interviewing: preparing people for change.* Guilford press.
- Michaels, L. Hellquist, H.B. (2001). *Ear, nose and throat histopathology.* Springer.
- Morgan, D.L. & Krueger, R.A. (1998). *Analyzing and reporting focus group results.* SAGE publications.
- National Institute on Deafness and Other Communication Disorders. (1997). *Recommendations of the NIDCD working group on early identification of hearing impairment on acceptable protocols for use in statewide universal newborn hearing screening programs.* Bethesda: NIDCD clearing house.
- Nelson, T.D. (2004). *Ageism: Stereotyping and prejudice against older persons*. MIT press.
- Nelson, M.E.; Baker, K. & Roubenoff, R. (2003). *Strong women and men beat arthritis.* Perigee.
- Neuman, W.L. (1997). *Social research methods: Qualitative and quantitative approaches (3rd Ed.)*. Boston: Allyn & Bacon.
- Nitchie, E.B. (2004). *Lip reading principals and practice.* Kessinger publishing.
- Northern J. L. & Downs M. P. (2001). Hearing in children. Lippincott Williams & Wilkins: Baltimore Maryland USA.
- Northern, J.L. & Downs, M.P. (2002). *Hearing in children.* Lippincott Williams & Wilkins: Baltimore Maryland USA.
- Olusanya, B.O.; Swanepoel, D.W.; Chapchap, M.J.; Castillo, S.; Habib, H.; Mukari, S.Z.; Martinez, N.V.; Lin, H. & McPherson, B. (2007). Progress towards early detection services for infants with hearing loss in developing countries. *BMC Health Services Research.* 7-14.

- Osterweil, D.; Brummel-Smith, K. & Beck, J.C. (2000). *Comprehensive geriatric assessment*. McGraw-Hill: Medical Publishers Division University of Michigan.
- Oxford University press. (2005). *Oxford dictionary of American English paperback*. Oxford university press.
- Palmer & Ortmann, (2006) in Calhoun, K.H. & Eibling, D.E. (2006). *Geriatric otolaryngology.* Marcel dekker.
- Pucknett, J.M, & Reese, H.W. (1993). *Mechanisms of everyday cognition.* Routledge publications.
- Purdy, L. (2001). Review of prenatal testing and disability rights. *Social theory and practice.* 27(4): 681-687.
- Purnell, S.G. (1990). *Communication problems experienced by geriatric hearing aid users.* Unpublished undergraduate research project. University of Durban-Westville, Durban South Africa.
- Ratnaike, R.N. (2002). *Practical guide to geriatric medicine.* McGraw-Hill.
- Roeser, R.J.; Valente, M. & Hossford-Dunn, H. (2007). *Audiology diagnosis, Volume 1.* Thieme.
- Ross, E. & Deverell, A. (2007). *Psychosocial approaches to health, illness and disability: A reader for health care professionals*. Van Schaik.
- Salkind, N.J. (2009). *Statistices for people who (thing they) hate statistics: Excel 2007 edition*. SAGE publications.
- Sandlin, R.E. (2000). *Textbook of hearing aid amplification.* Cengage learning.
- Sataloff, R.T. (1993). *Hearing loss.* Informa health care.
- Scollie, S. & Seewald, R. (2002). *Electroacoustic verification measures with modern hearing instrument technology.* Stafa, Switzerland: Phonak AG.

- Schalock, R.L. (1997). *Quality of life. Volume 11: Application to persons with disabilities.* Washington DC: American Association of Mental Retardation.
- Schiraldi, G.R. (2000). *The post-traumatic sourcebook: a guide to healing, recovery and growth*. McGraw-Hill Professionals.
- Schwab, D.P. (2005). *Research methods for organizational studies.*
- Seedat, J. (2008). Personal communication. Senior Audiologist. Johannesburg General Hospital.
- Shepard, L.A. (2001). *The role of classroom assessment in teaching and learning.* Washington, DC. American educational research association.
- Shipley, K.G. & McAfee, J.G. (2008). *Assessment in Speech-language Pathology: A resource manual*. Cengage learning.
- Simmons, R.; Frajans, P. & Ghiron, L. (2007). *Scaling up health service delivery: from pilot innovations to policies and programmes.* World health organisation, pp. 45.
- Snow, J.B. & Wackym, A.P. (2009). *Ballenger's otorhinolaryngology: head and neck surgery*. PMPH-USA.
- South Africa.; South African parliament. & Constitutional assembly. (1994). Constitution of the Republic of South Africa, 1996, Issue 108.Government printer.
- South African department of public service and administration. (1996). Green Paper: transforming public service delivery. The department of public service and administration.
- South African department of public service and administration. (2003). Batho Pele handbook : a service delivery improvement guide. The department of public service and administration.

- South African Speech-Language Hearing Association. (1997). Guidelines for speech language therapy and/or audiology service provision in the public sector.http://www.saslha.co.za/ (Accessed on the 20 June 2007).
- Stach, B.A. (1998). *Clinical audiology*. Cengage learning.
- Stach, B.A. (2003). *Comprehensive dictionary of audiology.* Cengage learning.
- Statistics South Africa. (2001). Primary tables: *Census 1996-2001.*
- Stewart, D.W., Shamdasani, P.N. & Rook, D.W. (2007). *Focus groups: Theory and practice.* SAGE publications.
- Steyn, A.G.W.; Smit, C.F.; du Toit, S.H.C. & Strasheim, C. (1994). *Moderne stastistiek vir die praktyk.* Pretoria: JL van Schaik.
- Stoop, G. (2007). Personal communication. General manager. Oticon South Africa.
- Swanepoel, D. (2006). Audiology in South Africa. *International Journal of Audiology.* 45: 262-266.
- Swanepoel, D.; Delport, S. & Swart, J.G. (2004). Universal newborn screening in South Africa: A first-world dream? *South African Medical Journal.* 94: 634-635.
- Tambs, K. (2004). Moderate effects of hearing loss on mental health and subjective well-being. *Psychosomatic medicine*. 66: 776-82.
- The White Paper on the Transformation of the Public Service (WPTPS) (Government Gazette No. 16838, dated 24 November 1995)
- *Tomita, M.; Mann, W.C. & Welch, T.R. (*2001). Use of assistive devices to address hearing impairment by older persons with disabilities. *International Journal of Rehabilitation Research. 24(4): 279-290.*

- Tye-Murray, N. (2008). *Foundations of aural rehabilitation: Children, adults and their family members.* Cengage learning.
- United Nations. (2006). *Yearbook of the United Nations 2005.* United nations publishers.
- Urdan, T.C. (2005). *Statistics in plain English*. Routledge.
- Valente, M. (2002). *Strategies for selecting and verifying hearing aid fittings.* Thieme.
- Valente, M. (2007). *Audiology treatment.* Thieme.
- Valente, M.; Hosford-Dunn, H. & Roeser, R.J. (2000). *Audiology: treatment*. Thieme.
- Van de Spuy, T. & Pottas, L. (2008). Infant hearing loss in South Africa: Age of intervention and parental needs for support. *International journal of Audiology.* 47: S30-S35.
- Waldt G. V. (1999). Managing for excellence in the public sector. Juta & company limited.
- Wall L. C. (1995). Hearing for the speech-language pathologist and health care professionals. Butterworth-Heinemann.
- Weinstein, D.A. (1994). *Anatomy and physiology for forensic psychophysiologist*. Department of defence polygraph institute.
- Weinstein, B.E. (2000). *Geriatric Audiology.* New York: Thieme medical publications.
- White Paper on the Transformation of the Public Service, 1995. Republic of South Africa. Pretoria: Ministry of Public and Administration.
- Wisker, G. (2001). *The postgraduate research handbook: Success with your MA, MPhil, EdD and PhD*. Basingstoke: Palgrave.

- Worrall, L. & Hickson, L.M. (2003). *Communication disability in aging: From prevention to intervention.* Delmar learning singular: Canada.

Appendix One
Letter to the retirement home

Pillay, D. (2009). University of Pretoria.

University of Pretoria

Department of Communication Pathology Speech, Voice and Hearing Clinic
Tel: +27 12 420 2815
Fax : +27 12 420 3517
Email : nellie.venter@.up.ac.za

TO WHOM IT MAY CONCERN

My name is Dhanashree Pillay. I am currently a Masters audiology student at the Department of Communication Pathology at the University of Pretoria. I am involved in conducting a research study investigating the perceptions of the elderly clients who are hearing aid users.

I would like to request permission to use this facility as the site for the study. The study will initially involve the completion of a questionnaire by all the hearing aid users. It will take each person approximately 45 minutes to complete the questionnaire. The second part of the study will be the discussions of a focus group and for this a select group of subjects will be requested to participate.

Should you require any further information please feel free to contact me at 0845493810.

Yours sincerely

Dhanashree Pillay
(Masters Student)

Mrs. P. H. Venter
(Supervisor)

Prof. Brenda Louw
Head: Dept. of Communication Pathology

Appendix Two
Concent Form

Pillay, D. (2009). University of Pretoria.

University of Pretoria

Department of Communication Pathology Speech, Voice and Hearing Clinic
Tel: +27 12 420 2815
Fax : +27 12 420 3517
Email : nellie.venter@.up.ac.za

TO WHOM IT MAY CONCERN

My name is Dhanashree Pillay. I am currently enrolled for a Masters degree at the Department of Communication Pathology, University of Pretoria. For the purposes of the degree I have to conduct a research project aimed at investigating the perceptions of the elderly hearing aid user. By establishing the perceptions and feelings of the elderly hearing aid user, modifications to the service delivery provided to this population can be recommended if so indicated. This study will be supervised by Mrs. P. H. Venter. I would be highly obliged if you consider participating in this study.

Should you choose to participate in the study you would be required to complete a questionnaire at the retirement home, at your convenience. The questionnaire includes the following areas: biographical details, audiological history and social history. Thereafter you may be requested to partake in a focus group discussion, further information will be provided to the participants of the focus group. Your identity as a participant and the information that you provide will be considered as confidential throughout the study. The information provided will be stored for fifteen years as required by the University of Pretoria. The information may be used in the future, you will be contacted for your permission before it is utilised. Participation is voluntary and you have the right to withdraw from the study at any point.

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By completing the questionnaire you acknowledge that you have taken notice of the information in the cover letter and give your consent to participate in the research. If there are any inquiries please feel free to contact me at 0845493810.

Yours sincerely

| --- | --- | --- |
| Dhanashree Pillay | Mrs. P. H. Venter | Prof. Brenda Louw |
| (Masters Student) | (Research Supervisor) | Head: Dept. of Communication Pathology |

Appendix Three
Questionnaire

Pillay, D. (2009). University of Pretoria.

CASE HISTORY QUESTIONNAIRE

Dear Participant

- This study is aimed review the service delivery provided to the geriatric population.
- Kindly answer the following questions.
- The researchers would like to inform you that strict care will be employed when conducting the research in order to protect your emotional and social well-being. All information will be treated with strict confidence by the researcher.
- Your consent to participate in this project will be greatly appreciated.

If you are willing to participate in this project please complete the following questionnaire carefully. It will take about 45 minutes to complete.

INSTRUCTIONS

1. Participants are required to mark the appropriate answer to each question with a circle, and provide more details if necessary. The researcher will be facilitating the completion of the questionnaire.

2. There are four sections, (A, B, C & D) to this questionnaire, please answer all the questions in each section.

3. Y = Yes N = No

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SECTION A

BIOGRAPHICAL DATA

1. PARTICIPANT NUMBER: _____

2. DATE OF BIRTH: _____

3. AGE : _____

4. SEX: _____

5. RESIDENTIAL ADDRESS: _____

_____

6. TELEPHONE NUMBER: _____

SECTION B

ASSESSMENT

CASE HISTORY

1. Did the audiologist begin your hearing assessment with a verbal interview?

Yes No

If yes, please provide an overview of what was discussed.

_____

_____

_____

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1. Were you required to fill in a checklist or questionnaire about yourself or your hearing?

Yes No

If yes, do you remember the name of the checklist?

_____

_____

_____

2. Approximately how long did the interview take?

< 15 min > 15 min > 30 min

3. Were you made aware of the tests that were to follow the interview?

Yes No Not Sure

IMMITTANCE AUDIOMETRY

4. Do you recall a test where air pressure was presented to your ears, accompanied by a soft tone? This test did not require any response.

Yes No Not Sure

AIR CONDUCTION AND BONE CONDUCTION

5. During the hearing test, were you asked to respond to sounds presented through earphones? The sounds were 'Beeps' and you may have been asked to press a button or raise your hand.

Yes No Not Sure

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6. Do you remember a test where sounds were present through a device placed behind your ear? The sounds were 'Beeps' and you may have been asked to press a button or raise your hand.

Yes No Not Sure

SPEECH ASSESSMENT

7. During the assessment, were you asked to repeat words to the audiologist?
Example : Say the word 'airplane, baseball'

Yes No Not Sure

8. After the hearing test did the audiologist explain the results clearly?

Yes No

HEARING AID SELECTION

9. During the hearing aid selection process, were you allowed to try on different hearing aids?

Yes No Not Sure

10. Did the audiologist make you aware of the different types of hearing aids.
Example : There are ones that fit behind the ear, in the ear and in the ear canal.

Yes No Not Sure

11. Were you told about the similarities and differences between the different hearing aids?

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Yes No Not Sure

12. Did the audiologist explain why this aid was suitable for you?

Yes No Not Sure

FITTING

13. When the aid arrived, were you happy with the condition of it?

Yes No

If no, do you remember why you were unhappy?

_____

_____

_____

14. Did the audiologist describe all the components of the aid?

Example : The on/off switch, the battery compartment.

Yes No

15. Did the earmould fit comfortably in your ear?

Yes No

16. Were you satisfied with the fitting?

Yes No

If no, do you remember why you were dissatisfied?

_____

_____

_____

SECTION C

HEARING AID INFORMATION

1. Do you know the name of your hearing aid?

   Yes No

2. Were you told about the hearing aid guarantee?

   Yes No

3. Are you aware of how to change the hearing aid battery?

   Yes No

4. How often do you change the battery?

_____

_____

5. Did the audiologist demonstrate the proper way of cleaning the hearing aid?

   Yes No

6. If something goes wrong or the hearing aid stops working, please explain what steps are taken to rectify the problem?

   _____

   _____

   _____

   _____

SECTION D

COUNSELLING AND AURAL REHABILITATION

1. Please state if you attended any follow-up sessions?

   Yes No

   If yes, how many?

_____

_____

2. Did the audiologist offer you the opportunity to attend any group therapy sessions?

   Yes No

   If yes, please explain why you declined the invitation.

_____

_____

   If no, would you have considered attending the sessions if they were available?

   Yes No

3. Are you involved in any hearing group therapy sessions

   Yes No

4. Do you think you would have benefited from group therapy sessions?

   Yes No

Pillay, D. (2009). University of Pretoria.

We wish to inform you that the data you have supplied will be screened and selected individuals will be required to undergo a focus group discussion. As you have already indicated your willingness to participate in such a program, we will be contacting you at the given address/telephone number.

THANK YOU FOR YOUR TIME AND WILLINGNESS TO PARTICIPATE IN THIS RESEARCH PROCESS.

Dhanashree Pillay
(Masters Student)

Mrs. P. H. Venter
(Supervisor)

Prof. Brenda Louw
Head: Dept. of Communication Pathology

Appendix Four
Focus Group: Consent form

Pillay, D. (2009). University of Pretoria.

University of Pretoria

Department of Communication Pathology Speech, Voice and Hearing Clinic
Tel: +27 12 420 2815
Fax : +27 12 420 3517
Email : nellie.venter@.up.ac.za

TO WHOM IT MAY CONCERN

You have been selected to participate in the focus group discussion. This discussion will be conducted at the retirement home at your convenience. The focus group will consist of seven participants. I will facilitate the discussion by asking the group five questions. Each participant will be given the opportunity to provide an answer to the questions. The discussion will take approximately forty five minutes to complete.

The focus group discussion will be audio and video recorded for analysis. The information that you provide will be stored for fifteen years as required by the University of Pretoria. Your identity as a participant and the information that you provide will be considered as confidential throughout the study. Participation is voluntary and you have the right to withdraw from the study at any point.

Please complete the following section if you agree to participate in the focus group discussion.

I, (print name) ---------- understand that all information I supply will be utilised with strict confidentiality and will only be used for the purposes of research and the improvement in service delivery to the geriatric population. I acknowledge my right to withdraw from the study at any time.

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Please tear off slip and return to the researcher.

I, (print name) ---------- understand the conditions mentioned above and thereby do / do not give consent to willingly participate in this study.

---------- ----------

Signature of participant Date

Dhanashree Pillay	Mrs. P. H. Venter	Prof. Brenda Louw
(Masters Student)	(Research Supervisor)	Head: Dept. of Communication Pathology

Appendix Five
Focus group guide

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FOCUS GROUP GUIDE

1. When you hear the words 'Customer Service' what comes to mind.
2. What do you think should be the most important parts of the hearing assessment and fitting?

OR

What areas should the audiologist concentrate on during the assessment and fitting process?

3. Think back to the audiological services you received.

   Do you think that you received 'Good service delivery'? Why do you say this?

4. Suppose you were motivating a friend to go or not go to your audiologist, depending on your experience, what would you say?
5. Is there anything that you think we should have discussed but missed?

OR

Is there anything that you would like to discuss, that we have missed?

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Appendix Six
Ethical clearance from the University of Pretoria

Pillay, D. (2009). University of Pretoria.

Extract One
T-test data

Pillay, D. (2009). University of Pretoria.

T-test data

P value and statistical significance:
The two-tailed P value equals 0.5166
By conventional criteria, this difference is considered to be not statistically significant.

Confidence interval:
The mean of Group One minus Group Two equals -12.50
95% confidence interval of this difference: From -81.38 to 56.38

Intermediate values used in calculations:
t = 0.7809
df = 2
standard error of difference = 16.008

Review your data:

Group	Group One	Group Two
Mean	5.50	18.00
SD	0.71	22.63
SEM	0.50	16.00
N	2	2

Extract Two
Focus group discussion transcript

Pillay, D. (2009). University of Pretoria.

Transcript

1. Participant F: 76 years: 2yrs aided: one hearing aid
2. Participant P: 76 years: 2 yrs aided: 2 hearing aids
3. Participant O: 82 years: 18yrs aided: 1 hearing aid
4. Participant T: 88 years: 5yrs aided: 1 hearing aid
5. Participant H: 1year aided: 2 hearing aids
6. Participant E: 83years: 1 year aided: 2 hearing aids
7. Participant M: 77years: long time

Question 1

When you hear the words 'Customer Service' what comes to mind?

Facilitator : If I have to say the words 'customer service' what do think about.
F : I didn't hear what you said.
Facilitator : If I have to say the words' customer service', if you hear 'customer service' what do you think 'customer service' means.
F :I didn't hear what you said.
Facilitator : When we say customer service, like people use the word when you buy something.
M : 'Customer service'
F : Yes 'customer service' yes (nodding her head)
Facilitator : What do you think about if you hear those words?
F : I don't know what to say to you.
Facilitator : I does not matter whatever comes to mind, if someone says customer service, will you think that the customer is always right, what do you think?
F : I'm not sure what to say about that.
Facilitator : Ok do you want to think about it and we will come back to you. (looking at person 2) what do you think about if I say 'customer service'?
P : I believe that I'm getting the best services and that I'm getting the benefit.
Facilitator : You getting the benefit?
P : Yes (nodding)
Facilitator : And you sir (looking at person 3)
O : 'Customer service' I would say that the customer is always right.
Facilitator : What do you think? (looking at person 4)
E : Good service from the company and it does not matter where or what it is.
Facilitator : What about you (looking at person 5)
T : That I find somebody to help and they are there to help me.
Facilitator : Good and you (looking at H) if we have to say customer service what..
H : (Quick answer before I could finish the question) theres no customer service, you Gotta help yourself, if you want to buy something there is nobody to ask where it is or anything. It's absolutely more difficult with the hearing loss. Give me the old fashioned shop any day.
Facilitator : At least then you could go and speak to the person and they answer your questions
H : Now they are all too busy to hear what we say
Facilitator : What do you think 'customer service' means? (looking at M)

Pillay, D. (2009). University of Pretoria.

M : Depends on the customer, and depends on the service. The customer can be right or wrong or the service can be bad or good. (looked at me for reassurance)
Facilitator : Sure and you have to see both sides of the coin and it depends on problem is.
M : That's right!
Facilitator : Do you want to answer anything about 'customer service'?? (looking at F)
F : No that's fine, I can't hear you.
F was excused from further participation as she could not hear the questions and choose not to carry on.
Facilitator : If we looking at your hearing test itself.

Question 2
What do you think should be the most important parts of the hearing assessment and fitting?

Facilitator : Some of you were fitted maybe two years or one year ago. What do you think should be the most important part of the hearing test? Do you think talking to the person first is important, testing is important?
P : All of it is important. The whole test procedure.
O : I didn't get what you said properly as my hearing has deteriorated from last year and I've got a new hearing aid which I can hear better but again its distorted.
Facilitator : Ok with the test itself what do you think was the most important part?
O : What?
Facilitator : Do you think you think talking to the person testing you is important?
O : Yes I think so, it is very important to be tested every six months.
(Everyone else seemed to agree, with nods and mumbles)
Facilitator : What do you think was important? (Looking at T)
T : All the aspects are equally important.
Facilitator : And you? (looking at E)
E : The same, all are important.
Facilitator : What do you consider as being important M?
M : I suppose you got to be tested first to find out what the problem is, but then what happened to me was that I went for the test and the lady put the thing in front and I couldn't see. (he is speaking about SRT and SDT). So she said to me I've done that purposefully so you can't memorise what I'm saying, but whoever tests you and for everybody else to be able to hear you got to speak slowly and clearly. It's all very well that you are hearing the ah... lets put it, you hearing the sounds but when they are talking fast it doesn't matter, you got to talk to the person and you got to talk slowly and clearly.
Facilitator : That's how / why we do that test but I understand that you need to see someone and hear them to help understand what they are saying.
M : Well let's put it to this, someone said to me that the sooner we learn sign language the better.

Question 3
Think back to the audiological service delivery you received. Do you thing you received 'good service delivery'?

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Facilitator :(Joan the audiologist at the Old Age home then helped Fran to leave the room as she was not participating in the focus group anymore). When you were tested, did you have good service? (Looking at P)
P : (Nodding) Yes, no bad things.
Facilitator : Did you have good services? (looking at O)
O : Pardon
Facilitator : When they tested your ears, where they good with service delivery?
O : Yes very good, no problems. Except that I lost more of my hearing. They tried to help me get new hearing aids
Facilitator : At least they tried to help thats good. (Looking at H) Did you have good service?
H : Pardon?
O : Did you have good services(in a louder voice in H's ears)
H : Oh yes, (nodding) the service was good but its my ears.
Facilitator : Is it getting worse? Is your hearing getting worse?
H : Ya I hear but I can't make out what's being said.
Facilitator : Would you say you had good services? (looking at T)
T : Yes
Facilitator : No Problems with the testing or the hearing aids?
T : It wasn't working first when they fitted it, they had to send it back.
Facilitator : What was the problem?
T : It was too sharp.
Facilitator : The sounds were too sharp. And after they changed the hearing aid was it better?
T : Yes it was.
Facilitator : Did you have good service delivery? (Looking at E)
E : Yes but the hearing aid batteries are a problem.
Facilitator : Do the batteries die often?
E : Ya
Facilitator : Are you using it all day?
E : Yes most of the time, but not at night.
Facilitator : You want your batteries to last as long as possible.
E : Yes but I can't get batteries that last longer.
Facilitator : Just to let you know that they are developing a battery charger.
E : Thats gona cost a fortune.
Facilitator : At least you won't have to buy the batteries over and over.
E : Yes but it depends on what it costs.
Facilitator : It would be a once of payment but they are still developing this, so we will have to see what happens.
E : I don't like coming to Joan and worrying her every 2 weeks to change my batteries.
Facilitator : It does depend on the make and size of the hearing aids
P : Mine lasts longer but I don't wear them all the time.
Facilitator : Its variable depending on the battery size, you get bigger ones and the smaller one. Depends on how long you wear them.
E : And my hearing as well.
Facilitator : How much power the hearing aid is using is important. When you were testing did you have good service delivery? (looking at M)
M : I got no complaints.

Pillay, D. (2009). University of Pretoria.

Question 4

Suppose you were to motivate a friend to go or not to go to your audiologist, depending on you experience, what would you say?

Facilitator : Ok. If you had to recommend that your friend gets their hearing tested. Would you recommend that they go get their hearing tested or not, at your audiologist?
P : Yes I would
Facilitator : Would you recommend that your friend get their hearing tested? (Looking at O)
P : Pardon? (He moved closer to me)
Facilitator : Would you recommend that your friend get tested, at your audiologist?
P : Yes I would. I would.
Facilitator : Is it because you see the benefit?
P : That's right.
Facilitator : Would you recommend that your friend go through and get their hearing tested?
T : Yes definitely if she is having difficulty hearing.
Facilitator : To the same person that you went to?
T : Yes
Facilitator : Would make the same recommendation? (Looking at E)
E : Nods Yes
M : Nods Yes as well.

Question 5

Is there anything that you would like to discuss, that we have missed?

Facilitator : Is there anything particularly with your hearing that we did not discuss. I know some of you have mentioned that sounds are difficult at times, batteries are important. Is there anything else that you may not be happy with?
E : My hearing aid makes a screeching sound.
Facilitator : Is it all the time?
E : Most of the time, today and yesterday it was making the sound.
Facilitator : Are people complaining that they can hear that sound?
E : Ya they tell me its squealing.
Facilitator : How do you rectify the problem?
E : I switch it off.
Facilitator : Ok, you switch it off.
E : Ya, I haven't got a ...what do you call that thing... to tune the hearing aid. (I think E is talking about the screwdriver). So I just switch it off.
Facilitator : Anything else that worries you about the aid.
E : No
Facilitator : What you are saying is very important. We need to know these things as we as audiologists can go back to the companies and let them know what the problems are and they can try and sort it out. You are the important people as you are wearing the hearing aids. I would like to know how you feel because I don't know how it feels as I don't have a hearing loss, the information I get from you will help. (Looking at M) Is there anything that you think is important?
M : I think the problems are with the batteries.
Facilitator : Mm ok.

M : Now let me tell you why. When I had it on all the time the battery lasted 2 days. The other time i was wearing a watch that a 15 year battery, so I went to the Jeweller and asked him if that battery will fit my hearing aid. It lasted about a Month.
Facilitator : In your hearing aid?
M : Yes the jeweller battery, the 15 year battery in my hearing aid lasted a month.
Facilitator : Ok
M : So i think the problems are the batteries, they could last a bit longer.
Facilitator : Mm ok
M : Especially because its expensive, but maybe the quality can improve.
Facilitator : Yes, thanks. Maybe why it lasted a short time in your hearing aid is because the hearing aid is working all the time. What I do agree with is that the batteries cost a lot of money and every month you are buying those batteries. If they can last longer at least they can work better and more people would want to wear the hearing aids.
M : But mine does last a longer time because as I say I very seldomly use it. Then when I do use it, it doesn't work cos the battery noise and other things. Like if I need it Louder, whats the use of making it louder and the background noise is also louder and you still can't hear.
Facilitator : Thanks, does anyone else have anything you would like to say.
M : I think each problem with the hearing aid depends on the individual wearing the hearing aid itself. My problem may not be someone elses problem.
Facilitator : Sure, but also on the other hand your problem can be the same as everybody else and they may not be saying it.
M : Yes fine bit each one should go according to their problems and their situation.
Facilitator : Yes, everyone comes from a different background, different lifestyle and different social life.
M : Sometimes even in the bedroom, only with my wife and my pet and i got my hearing aid on. I can hear the sound but I can't hear the words because they are not talking to me.
Facilitator : You just hear that they are around you?
M : I can hear the sound but not what they are saying.
Facilitator : Anybody else?
O : I think it depends on what type of hearing aid you've got. I happen to have a very good hearing aid and my battery lasts the same, a month. And i found it quiet good.
Facilitator : Do you have a hearing aid that has different programmes or one programme?
O : No actually I can hear you but when i put the TV on I can't hear.
Facilitator : You can hear the noise but not the TV.
O : I can hear but not clear. I can catch some words but most of it I can't. Its not the hearing aid, its my hearing it has deteriorated. But i think when it comes to the battery it depends on what type of hearing aid you've got. If you've got good hearing aids your battery lasts longer and if you get a cheap hearing aid it don't last as long. I know someone whos got one and it lasts a week.
Facilitator : Sometimes its the power, if its very powerful it will last a shorter time. Its may be so strong that i pulls all the current from the battery. Not necessarily

cheaper just more powerful. Do you think these anything else that you want to discuss?
T : No I don't think so.
Facilitator : Anyone else?
E : I have problems making it loud now and making it softer. If i put it louder I get a screeching noise.
Facilitator : When you program a hearing aid, they program it for your hearing loss. And because of the power in the hearing aid, maybe because of the power when you put it louder it can's actually take in all of the sounds and it starts squealing.
E : Even if I say I'm walking outside and i put it louder it squeals.
Facilitator : I can hear it making a little bit of noise.
E : I then can't hear because it stops
Facilitator : And you said how long are you wearing them?
E : About a year i think.
Facilitator : About a year, and do both ears do the same thing? Do both ears squeal?
E : Yes
Facilitator : Maybe, where did you get them from?
E : From here (pointing at Joan)
Joan : From Hearing Well
Mr H : He decided that he needed to leave as he had another appointment.
Joan : Mr H didn't you want to ask her why it whistles?
Mr H : Sorry I can't wait, I have to leave.
Facilitator : Ok, (speaking to Joan) sometimes it's the fit of the ear mould, when putting it into the ear the fit may be loose.
Facilitator :Everyone must make sure that at least once a year you retest the hearing because it may get worse with time.
F : I don't know why i don't hear you. All of a sudden i got a problem.
Facilitator : Is it like this your the past month or so? When did this start?
F : I don't normally have a problem.
Facilitator : Is it only today.
F : Yes now only I got a problem.
Facilitator : Do you think you may be getting the flu or are you sick?
F : No I just cant't hear you.
Joan : Can you hear me?
F : No response
Joan : Maybe its wax, she gets alot of wax.
Facilitator : ok it may be wax. If theres any wax stuck in your hearing aid, if your hearing decreases, if you get the flu as well, if you get fluid of liquid in your ears. Things like that, you may have difficulty hearing. With all the information you have about hearing aids, do you think there is anything that they could do for you to make things better? No-one says anything maybe come see you every month, have follow-ups? Anything that you think may enhance hearing of the fitting?
O : I think what you said about the wax is important, every few months i have to go to someone to clean the wax.
Facilitator : Do you think that the person that gave you the or fitted you with the hearing aid should offer a service to remove wax?
O : Yes i think so!

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Facilitator : In this country at the moment they deciding on a rule that student learn how to syringe ears, and at least when you get fitted the person can clean your ears for you. This will be better as normal we would have to refer you to a doctor to syringe your ears and now we may be able to do this for you.
E : How often is that?
Facilitator : Some people produce more wax very often and they will accumulate a lot of wax.
E : Wax truely become irritating, it separate you.
Facilitator : Sometimes people syringe their ears every two weeks.
E : I also have to get my ear syringed often.
Facilitator : It good that you do that. Anything else that you want to talk about?
O : i think you need to have your hearing aid tested, at least once a week, and then Joan sometimes fixes it us for me.
Facilitator : Is there anything else that you would like to say, please let me know.
E : what normal, how often must you get it syringed.
Facilitator : People who have hearing aids and produce wax slowly should get it removed about every three months.
M : What the method of cleaning?
Facilitator : First the ask you to put sweet oil in your ears or olive oil just to soften the wax. Then they syringe the ears.
P : I used to go once every two months
E : And with mine, can it cause squealing.
Facilitator : Yes the wax could cause problems with the hearing aids.
E : I thought it's my hearing.
Facilitator : I will check for you, first we will check for wax, then we can decide and check the hearing. Thank you all so much for coming through. If you have any problems you must ask Joan and I will try and help.
M : Rather we try and get to the core of deafness.
Facilitator : I feel that is definitely would be good to develop something to make the hearing get better but it will be a long time for that to happen.

End 27:09 time

Facilitator : If I have to say the words ' customer service' what do think about.

F : I didn't hear what you said.

Facilitator : If I have to say the words' customer service', if you hear 'custome service' what do you think 'customer service' means.

F : I didn't hear what you said.

Facilitator : When we say customer service, like people use the word when you buy something.

M : 'Customer service'

F : Yes 'customer service' yes (nodding her head).

Facilitator : What do you think about if you hear those words?

F : I don't know what to say to you.

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Facilitator : I does not matter whatever comes to mind, if someone says customer service, will you think that the customer is always right, what do you think?

F : I'm not sure what to say about that.

Facilitator : Ok do you want to think about it and we will come back to you. (looking at person 2) what do you think about if I say 'customer service'?

P : I believe that I'm getting the best services and that I'm getting the benefit.

Facilitator : You getting the benefit?

P : Yes (nodding).

Facilitator : And you sir (looking at person 3).

O : 'Customer service' I would say that the customer is always right.

Facilitator : What do you think? (looking at person 4).

E : Good service from the company and it does not matter where or what it is.

Facilitator : What about you (looking at person 5).

T :That I find somebody to help and they are there to help me.

Facilitator : Good and you (looking at H) if we have to say customer service what.

H : (Quick answer before I could finish the question) there is no customer service, you gotta help yourself, if you want to buy something there is nobody to ask where it is or anything. It's absolutely more difficult with the hearing loss. Give me the old fashioned shop any day.

Facilitator : At least then you could go and speak to the person and they answer your questions.

H : Now they are all too busy to hear what we say.

Facilitator : What do you think 'customer service' means? (looking at M).

M : Depends on the customer, and depends on the service. The customer can be right or wrong or the service can be bad or good. (looked at me for reassurance).

Facilitator : Sure and you have to see both sides of the coin and it depends on problem is.

M : That's right!

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Facilitator : Do you want to answer anything about ‘customer service’? (looking at F).