PATIENT-PRACTITIONER INTERACTIONS:
Older adults and their audiologists

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Abstract

Hearing impairment increases in prevalence with ageing. If left untreated, hearing impairment can be a barrier to successful ageing and can cause a variety of negative consequences. Recent investigations of factors associated with hearing aid uptake and use by older adults revealed a paucity of research examining the value and influence of patient-audiologist interactions. Within the health professions, there is a growing interest in patient-practitioner interactions and in particular the quality of professional exchanges termed “patient-centred”. Philosophical and clinical definitions of the term are reported throughout literature where decades of research illustrate relationships between patient-centred care and improved patient outcomes. Before such relationships can be examined in audiological rehabilitation for older adults, the term needed first be defined and the existence of patient-centred interactions explored.

This research utilised a mixed-methods design to triangulate patient-centred care in audiological rehabilitation as defined by older adults with hearing impairment with observed patient/companion-audiologist communication in audiology consultations. A sequential exploratory design was used across two studies. Firstly, a qualitative descriptive study was conducted with a purposively sampled group of older adults who owned hearing aids. This study explored participants’ experiences with audiologists and their definition of patient-centred audiological rehabilitation. The findings of this study are represented visually in two models. The first model describes the people, behaviours and processes required to provide patient-centred audiological rehabilitation: a therapeutic relationship was seen as central to patient-centred audiology interactions; the audiologist and patient were seen as key players; and the way two processes occurred (information exchange and decision-making) was considered instrumental in whether audiological rehabilitation was patient-centred. The second model provided an operationalised description of how patient-centred care can be clinically implemented. In this model, there were four dimensions: 1) therapeutic relationship, 2) informed patients, 3) involved patients and 4) individualised care.
Results from Study 1 provided a rationale and focus for the examination of patient-audiologist communication in initial consultations and thus informed the second study. In Study 2, 63 initial consultations between audiologists and older adults (and companions in 17 cases) were filmed and analysed using the Roter Interaction Analysis System (RIAS). This method was used to examine the presence and nature of patient-centred communication. Analyses were conducted in two phases: Study 2a focussed on the history-taking phase of initial consultations and Study 2b focussed on the counselling phase. Taken together, the results revealed a dearth of patient-centred communication in initial consultations. That is, little communication was invested in developing a therapeutic relationship; patients were primarily informed only about hearing aids and audiologists asked closed-ended, biomedical questions thus limiting information received about patients’ needs. Little patient and companion involvement was observed. Audiologists rarely sought input from those accompanying the client and, in the presence of a companion, asked fewer psychosocial and lifestyle questions and offered less psychosocial and lifestyle education than when a companion was not present. Limited individualisation of information and options was observed.

At the conclusion of this thesis, the results of Study 2 were juxtaposed with the results of Study 1. The overall findings present an imperative to value and promote the quality of patient-audiologist interactions, beyond technical skills, in the provision of “patient-centred” audiological rehabilitation for older adults and in the education of students of audiology.
Declaration

This declaration is to certify that:

a) The thesis comprises only my original work except where indicated in the Preface,

b) Due acknowledgement has been made in the text to all other material used,

c) The thesis is fewer than 100,000 words in length, exclusive of tables, maps, bibliographies and appendices.

______________________________
Caitlin Mae Grenness
Preface

This thesis is composed of my original work and contains no material previously published or written by another person except where due reference has been made. I have clearly stated the contribution by others to jointly authored works that I have included in my thesis. A signed copy of authorisation by co-authors and declaration of thesis with publication was submitted with this thesis.

I have clearly stated the contribution of others to my thesis as a whole, including statistical assistance, data analysis and other original research work used or reported in my thesis.

The content of my thesis is the result of work I have carried out since the commencement of my research higher degree candidature and does not include work that has been submitted to qualify for the award of any other degree or diploma in any university or tertiary institution.

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I acknowledge that the copyright of all material contained in my thesis resides with the copyright holder(s) of that material.
Statement of contribution to jointly authored works contained in this thesis

For each publication contained in this thesis, the PhD candidate was primarily responsible for the review of literature, research plan and design, recruitment, data collection, analysis, interpretation of results and writing.

Professor Hickson, Associate Professor Davidson and Assistant Professor Laplante-Lévesque contributed to the research plan and design and reviewed the data analysis, interpretation and writing. Dr Meyer contributed to the research design, data analysis and interpretation of two of the manuscripts contained in this thesis. All other contributions are acknowledged in the publications.


Statement of contributions by others to the thesis as a whole

The PhD candidate was primarily responsible for the concept and design of the studies, gaining ethical approval, participant recruitment, data collection, analysis and interpretation and manuscript preparation. However, the following people have made significant contributions to the thesis as a whole:

Professor Hickson, Associate Professor Davidson and Assistant Professor Laplante-Lévesque had substantial input into the concept and design of each study, the analysis and interpretation of the data, and critical appraisal of written work.

To the best of my knowledge and belief, no person who has offered contributions consistent with the above has been excluded as an author. Persons who have contributed to the work but not at a level that constitutes authorship have been acknowledged in the text.
Published works by the author incorporated into the thesis

One peer-reviewed publication is incorporated into this in an altered form.

1) The following publication is a derivation of Chapter 2, section 2.4:


Three peer-reviewed publications are incorporated in their entirety in the thesis.

2) The following publication constitutes Chapter 4:


3) The following publication constitutes Chapter 5:


Note: This manuscript was under review at the time of thesis submission. The published version of this chapter contains some variations as a consequence of the peer-review process.

4) The following publication constitutes Chapter 6:

Additional published works by the author relevant to the thesis but not forming part of it


Meyer, C., Grenness, C., & Hickson, L. (in preparation). Is the pattern of audiologist-older adult client communication associated with patients' decision to obtain a hearing aid?
Acknowledgments

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To my colleagues, I thank you for your patience and encouragement. Specifically, I would like to give a big hug to Dani - my PhD sister, Jess, Judy, Carly and Els.

This journey has been guided by three incredible women who make a gigantic contribution to improving health outcomes for adults with communication disorders. Louise, I thank you sincerely for your guidance and ability to care, all-the-while encouraging growth and self-sufficiency. You are a gem to this profession and I don’t believe there is anyone else quite like you. To Ariane, you have taught me so much. You are an inspirational example of what can be achieved in a short time. Your clear mind, dry humour and weather updates from Denmark have been motivating and grounding. To Bronwyn, on a personal and professional level, I have been so fortunate to have your support, warmth, guidance and fresh perspectives close-by.

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To my husband Alasdair: what a journey we have been on for the last four years. You have listened, suggested, questioned, encouraged and loved constantly. There is no one in the world that I would rather have taken this journey with.

For my grandparents
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<tr>
<td>ASHA</td>
<td>American Speech-Language-Hearing Association</td>
</tr>
<tr>
<td>ANOVA</td>
<td>Analysis of Variance</td>
</tr>
<tr>
<td>AuD</td>
<td>Doctorate of Audiology</td>
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<tr>
<td>BSA</td>
<td>British Society of Audiology</td>
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<tr>
<td>CI</td>
<td>Confidence interval</td>
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<tr>
<td>cm</td>
<td>Centimetres</td>
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<td>dB</td>
<td>Decibels</td>
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<tr>
<td>Hz</td>
<td>Hertz</td>
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<tr>
<td>ICC</td>
<td>Intraclass correlation coefficient</td>
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<tr>
<td>kHz</td>
<td>Kilo Hertz</td>
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<td>LMM</td>
<td>Linear Mixed Model</td>
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<tr>
<td>mins</td>
<td>Minutes</td>
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<tr>
<td>NS</td>
<td>Not significant</td>
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<tr>
<td>PCAR</td>
<td>Patient-centred audioligic rehabilitation</td>
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<tr>
<td>RIAS</td>
<td>Roter Interaction Analysis System</td>
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<tr>
<td>SD</td>
<td>Standard deviation</td>
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<td>Sec</td>
<td>Second</td>
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<tr>
<td>UK</td>
<td>United Kingdom</td>
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<td>USA</td>
<td>United States of America</td>
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Chapter One
CHAPTER 1

Introduction

1.1 Introduction

Most people have a preference for a particular family doctor or other health professional. What is it about the health professional that generates a preference? Patients assume the qualification framed on the wall certifies that the professional has the technical competencies required to perform their job. Interaction skills, however, appear to be specifically valued, but cannot be assumed based on the qualification. At present, little is known about audiologists’ interaction skills. Which interaction skills are valued by older adults in the context of adult audiological rehabilitation? Are these skills observed in audiological rehabilitation consultations between audiologist and older adults?

This thesis addresses these two broad questions across two studies, in the context of audiology in Australia. The current chapter acts as a preface to this body of research by presenting a background to the research followed by an overview of the thesis chapters.

1.2 Background

Hearing impairment is a common chronic condition which increases in prevalence with ageing. If left untreated, hearing impairment can be a barrier to successful ageing (Strawbridge, Wallhagen, Shema, & Kaplan, 2000) and can cause a variety of negative consequences (Arlinger, 2003). For these reasons, much research focusses on older adults specifically. Hearing aids, hearing assistive technology and communication education are evidenced as efficacious rehabilitation options for
acquired hearing impairment (Abrams, Chisolm, & McArdle, 2005; Chia et al., 2007; Chisolm, Abrams, & McArdle, 2004; Gopinath et al., 2012; Harkins & Tucker, 2007; Hickson, Laplante-Lévesque, & Wong, 2013; Mulrow et al., 1990; Vuorialho, 2006). Despite this, the majority of adults with hearing impairment do not seek help and few take up hearing aids (Duijvestijn et al., 2003; Hartley, Rochtchina, Newall, Golding, & Mitchell, 2010). Of the small proportion of people who take up hearing aids, between a tenth and a quarter do not wear their hearing aids (Dillon, Hickson, & Lloyd, 2012; Hartley et al., 2010).

Low uptake and use of hearing aids and diminished success with hearing rehabilitation has a number of negative consequences. In addition to the psychosocial consequences, there is significant expense for individuals with hearing impairment, their families, third party payers and the wider society. While a successful hearing aid fitting is cost-effective (Joore, Van der Stel, Peters, Boas, & Anteunis, 2003), significant financial resources often go towards devices that do not effectively reduce the negative consequences of hearing impairment. Thus, it is pertinent to examine the underlying causes for the discrepancy between the proportion of people who seek help for hearing impairment and the proportion of people who take up hearing aids and use them successfully.

### 1.3 Rationale for thesis

The barriers and facilitators to uptake and success with hearing aids have received extensive research attention. Three comprehensive reviews have been published on this topic (Jenstad & Moon, 2011; Knudsen, Öberg, Nielsen, & Kramer, 2010; Meyer & Hickson, 2012). Reviews by Jenstad and Moon (2011) and Meyer and Hickson (2012) both focus specifically on literature relevant to older adults. Definitions on what constitutes an ‘older adult’ in contrast to ‘elderly’ or ‘middle-aged’ vary by country and context. In Western countries, the definition of ‘older’ tends to coincide with retirement age and eligibility for government pensions (e.g., 60 to 65). However, the World Health Organisation proposed that 50 years and older be used as a universal general definition of an ‘older adult’ (World Health
Organisation, 2014). In this thesis, older adults were initially defined as being aged 60 years or older. However, for practical reasons, this definition was expanded to include adults aged 55 to 59. The implications of this decision are discussed in Chapter 7.

All three reviews report that a multitude of factors influence help-seeking, uptake and success with hearing aids. For example, personal factors, including age, gender, personality and degree of hearing impairment; alongside subjective factors such as self-reported hearing handicap, stigma and attitude; and hearing aid specific factors such as cost are all influential. All three of these reviews were extensive; however, there is a notable gap in the literature. Knudsen et al (2010) underlined the lack of data relating to the influence of the health professional and their interactions with patients on hearing aid uptake and success. These authors found that just two studies addressed the role of the health professional throughout an individual’s journey to hearing aid success. One study found no relationship between hearing aid use and traits of the audiologist; however just three audiologists participated in this study (Hickson, Hamilton, & Orange, 1986). In the second study, an association was found between satisfaction with hearing aids and satisfaction with the hearing aid practitioner (Uriarte, Denzin, Dunstan, Sellars, & Hickson, 2005); however, the design of this study meant no causal relationship could be derived.

The paucity of research into the role and nature of the patient-practitioner relationship in audiological rehabilitation forms the basis of this thesis. Firstly, this thesis reports on research that explores the patient-audiologist interaction experiences of older adults who own hearing aids and defines patient-centred care in audiological rehabilitation. Secondly, this thesis examines the nature of patient-centred care in initial audiology consultation in the context of Australian audiological rehabilitation.
1.4 Thesis context: Audiological rehabilitation in Australia

This research occurred in the context of adult audiological rehabilitation in Australia. An overview of audiological rehabilitation in Australia, including its specific funding and organisational processes, is provided to set the scene.

Given Australia’s vast geographical and population spread, the majority of audiology services are provided face-to-face in metropolitan, urban and rural-centre settings. Consequently, most adults seeking audiological rehabilitation have a consultation with an audiologist wherein a diagnostic assessment is conducted, after which audiological rehabilitation is recommended and, in most cases, provided.

Older Australians can access audiological rehabilitation under two main funding models. The Australian Federal Government Office of Hearing Services (OHS) provides funding for hearing services to eligible people. To be eligible one must be an Australian citizen or permanent resident who:

- Holds a Pension card (with ≥ 65 years of age or disability eligibility),
- Holds a repatriation health card (war service or defence force employment eligibility),
- Is a dependent of a person who fits the two previous categories,
- Is a member of the Australian Defence Force,
- Is under 26 years of age, or
- Is an Aboriginal or Torres Strait islander and over the age of 50 years (Australian Government Department of Health, 2013).

Eligible adults can be seen at any audiology clinic which holds a contract with the OHS. This contract defines the rate of reimbursement for services and holds the clinic and audiologist accountable for undertaking specific processes and adhering
to specified clinical protocols. Clinics which hold an OHS contract are paid a nominal fee for the following services:

- Conducting an audiometric assessment,
- Contribution towards hearing devices (based on minimal degree of hearing impairment, analysis of wants and needs or additional auditory conditions such as tinnitus),
- Time spent fitting the device,
- Follow up consultation,
- A single communication and hearing aid education session (group or individual) if the client has obtained hearing aids,
- Audiometric re-test 3-years post fitting,
- Re-fit of hearing aids after 5 years.

In addition to government payment, an audiology clinic may also offer higher end hearing technology to the client for a ‘top up’ fee; that is, the adult client may augment the subsidy and obtain alternative hearing devices and additional features or assistive technology (such as Bluetooth or remote controls).

Under this scheme, there is currently no scope for payment based on quality of service delivery outcomes. Rather, payment is based on the provision of service and thus, increased throughput equates to increased reimbursement. In addition, the fitting of hearing devices produces substantial margin of profit for the provider. That is, the amount the OHS reimburses the provider for the device generally exceeds the cost price of the device. Device fitting is, in many cases, the primary source of organisational income. Funding is also available for non-technical service delivery (i.e., communication and hearing aid education session). However, the uptake of this funding stream has been poor (Australian Government Department of Health, 2014). The reasons for this are not documented. Anecdotally, audiologists report a lack of confidence in providing such a service, a lack of interest from the public and a lack of support from employing organisations.
Adults who are not eligible for OHS funding finance their own audiological rehabilitation. In some cases, private health insurance may provide some reimbursement for audiology consultations and hearing aids. Private audiology clinics exist in a number of forms in Australia: independent, typically small employers; chain or consortium owned; or hearing aid manufacturer owned. Any of these clinics may hold an OHS contract in addition to seeing private clients.

1.5 Purpose of this thesis

The purpose of this research was to advance the current knowledge relating to older adult patient-audiologist interactions and to examine the skills and processes valued and considered patient-centred in audiological rehabilitation interactions. Specifically, this research sought to explore aspects of the patient-audiologist interaction described as patient-centred according to older adults who own hearing aids. How do older adults describe patient-centred audiological rehabilitation? What do older adults who own hearing aids value in their audiological rehabilitation? Based on answers to these questions, this research then asked: do older adult patients receive patient-centred audiological rehabilitation? To reflect the sequential and complementary nature of these questions, this thesis contains two studies, conducted sequentially using a mixed-methods design.

1.6 Aims of the thesis

The overall aim of the thesis was to explore the meaning and nature of patient-centred interactions in audiological rehabilitation for older adults. The specific aims were:

1) To explore the experiences of older adults who own hearing aids, relating to their interactions with audiologists.

2) To develop a definition of patient-centred audiological rehabilitation from the perspective of older adults who own hearing aids.
3) To determine the nature of patient-centred communication between audiologist and older adult patient/companion in initial audiology consultations.

   a) To observe the nature of patient-centred communication between audiologist and older adult patient/companion in the history-taking phase of initial audiology consultations.

   b) To observe the nature of patient-centred communication between audiologist and older adult patient/companion in the counselling phase of initial audiology consultations.

   c) To identify audiologist, patient or consultation-related factors that may influence patient-centred communication dynamics in initial audiology consultations.

1.7 Overview of thesis

This thesis was conducted using a sequential mixed-methods design. Aims 1) and 2) were addressed in Study 1, a qualitative study. The results of Study 1 informed and were followed by Study 2, a two-part quantitative study that addressed aim 3). The structure, aims, participants and analysis method of each study is outlined below in Figure 1.1.
This introductory chapter is followed by a review of literature relevant to this thesis. Chapter 2 contains an integration of research that depicts a current problem in audiological rehabilitation (i.e., poor rates of uptake and success with the primary rehabilitative option, hearing aids) and illuminates a gap in knowledge surrounding the influence of the audiologist and his or her interaction with an adult patient on audiological rehabilitation. The gap in knowledge underpins the research aims of this thesis. Chapter 2, section 2.4, contains a critical appraisal of the literature surrounding a proposed theoretical framework for understanding patient-audiologist interactions: patient-centred care. A derivation of this section was published in the *International Journal of Audiology*. This discussion includes theoretical perspectives, operational meanings, mediating factors and ways of observing and/or measuring patient-centred care. The literature highlights the importance of patient-centred care and its positive association with patient outcomes, particularly when the health condition is chronic in nature. Audiological rehabilitation has the potential to align with patient-centred ideals; however as the
literature review reveals, there is a need to explore what it means to be patient-centred in this context and whether such behaviours occur in current clinical practice.

Chapter 3 presents the rationale for methodological decisions made throughout this thesis. The rationale for a sequential, exploratory mixed-methods design and the strategy used for both qualitative and quantitative studies are discussed. Methods specific to each study (reported in Chapters 4, 5 and 6) are found within the respective chapters.

Chapters 4, 5 and 6 consist of published or to-be-published work. Each chapter is included in its published or publication-ready form excluding reference, spelling and text formatting changes to ensure consistency throughout the thesis. References are found at the conclusion of each chapter for ease of reading.

Chapter 4 describes Study 1: a qualitative investigation using semi-structured interviews. Here, older adults who had owned hearing aids for at least one year were interviewed about their experiences interacting with audiologists. Participants’ perceptions and descriptions of what patient-centred audiological rehabilitation means were explored. This study described four categories and one overarching theme of patient-centred audiological rehabilitation and proposed a model of how patient-centred audiological rehabilitation might be operationalised clinically. This study was published in the *International Journal of Audiology*.

The results of the qualitative study informed the focus and design of Study 2. The data collected in Study 2 was then analysed in two parts. In Study 2a, an interaction analysis of 63 history-taking phases was conducted and in Study 2b, an interaction analysis of 62 counselling phases within initial audiology consultations was conducted. Study 2a and 2b provided insight into the nature of patient-audiologist interactions. Study 2a is described in Chapter 5. This manuscript was under review at the time of submission and has since been accepted for publication in *Ear and Hearing.*
Chapter 6 contains Study 2b, the exploration of audiologist-patient/companion verbal communication in the counselling phase. Within this chapter, diagnosis and management planning are explored. This paper has been accepted for publication in the *Journal of the American Academy of Audiology*. Finally, Chapter 7 brings together a discussion of all results, implications for clinical practice and future research, and integrates the strengths and limitations of this thesis.
1.8 References


Chapter two
CHAPTER 2

A review of the literature

2.1 Introduction

The purpose of this chapter is to review and synthesise literature relevant to the topic of this thesis. Three areas of the literature are addressed in this chapter:

- Hearing impairment and hearing rehabilitation,
- Patient-audiologist interactions, and
- The framework for quality patient-practitioner interactions: “patient-centred care”.

This review of the literature identifies gaps in current knowledge which warrant the investigation entailed in this thesis. To conclude the chapter, the philosophical framework of “patient-centred care” is explored and presented as the lens through which quality patient-audiologist interactions will be defined and observed.
2.2 Hearing impairment and hearing rehabilitation

The world is currently experiencing a rapidly ageing population. According to the World Health Organisation, by 2025, there will be approximately 1.2 billion people over the age of 60 (World Health Organisation, 2002). At present, in Australia, 13.5% of the population are aged over 65 years. Over a 20-year period between 1990 and 2010, the population growth for those aged 85 or older increased by 170.6%, compared to a general population increase of 30.9% (Australian Bureau of Statistics, 2010). The prevalence of many chronic health conditions increase with age, as does the demand and cost of healthcare (Denton & Spencer, 2010). Provision of effective and efficient healthcare is therefore an area of great interest (Luxford, Safran, & Delbanco, 2011; Ryan, Anas, & Friedman, 2006; Sarkisian, Lee-Henderson, & Mangione, 2003; Victor, 2010; Yoon, Cole, & Lee, 2009).

Age-related hearing impairment is a prevalent chronic health condition which affects approximately three quarters of people over the age of 70 in Australia (Chia et al., 2007). Similar prevalence rates have been reported across the Western world (Cruickshanks et al., 1998; Gates, Cooper, Kannel, & Muller, 1990; Lin, Thorpe, Gordon-Salant, & Ferrucci, 2011; Roth, Hanebuth, & Probst, 2011; Turton & Smith, 2013). Epidemiological data clearly shows an increase in hearing impairment prevalence with increasing age. For example, in the United States of America, prevalence of hearing impairment jumps from 20% in adults aged 48 to 59, to 90% in adults over the age of 80 (Cruickshanks et al., 1998). Moreover, the degree of hearing impairment increases non-linearly with age and affects males more than females (Cruickshanks et al., 1998; Roth et al., 2011). In addition to increasing severity and prevalence of hearing impairment with age, adults are living longer and consequently, the prevalence of hearing impairment is predicted to rise (Lin et al., 2011).

The most common type of hearing impairment in adults is sensorineural, bilateral, and more pronounced in the high frequencies (Gates et al., 1990). This hearing impairment, termed presbycusis, affects both the peripheral and central auditory
system (Gates, 2005). The degree of presbycusis increases at a rate of approximately 1dB per year for those over the age of 60 years (Lee, Matthews, Dubno, & Mills, 2005). As a result of the gradual nature of presbycusis the symptoms of hearing impairment often go undetected for many years (Davis, Smith, Ferguson, Stephens, & Gianopoulos, 2007). The long-term nature of presbycusis qualifies hearing impairment as a chronic health condition (Lawn & Schoo, 2010). Presbycusis cannot be medically managed or improved with surgery and thus, the primary management of hearing impairment is audiological rehabilitation.

### 2.2.1 Impact of age-related hearing impairment

The International Classification of Functioning, Disability and Health of the World Health Organisation (2001) is often used to describe the effects of hearing impairment (Chisolm, Abrams, McArdle, Wilson, & Doyle, 2005; Danermark et al., 2010; Gagné, Jennings, & Southall, 2009; Hickson & Scarinci, 2007). In this classification system, the consequences of a health condition encompass the inter-related domains of impairment, activity limitation and participation restriction and are related to both environmental and personal factors (World Health Organisation, 2001). Thus, the experience of hearing impairment is individual and more complex than examining audiometric results alone (Wiley, Cruickshanks, Nondahl, & Tweed, 2000).

In addition to being common and chronic, hearing impairment has numerous negative functional consequences. Hearing impairment is associated with negative psychosocial consequences including decreased quality of life (Abrams, Chisolm, & McArdle, 2005; Bess, 2000; Kochkin & Regin, 2000; McArdle, Chisolm, Abrams, Wilson, & Doyle, 2005). In addition, rates of anxiety, depression and social isolation are higher in people with hearing impairment compared to others of the same age with no hearing impairment (Hogan, O’Loughlin, Miller, & Kendig, 2009; NCOA, 1999). Recent studies have identified independent associations between hearing impairment and cognitive decline, such as dementia (Lin, Metter, et al.,
2011); functional decline, namely communication breakdown (Dalton et al., 2003; Strawbridge et al., 2000); and social withdrawal and associated psychosocial effects (Kramer et al., 2002; Strawbridge et al., 2000). In addition to the effect on the individual, untreated hearing impairment can also impact the quality of life for close family or friends of those with hearing impairment (Access Economics, 2006; Chia et al., 2007; Dalton et al., 2003; Hogan et al., 2009; Kramer, Kapteyn, Kuik, & Deeg, 2002; Preminger & Meeks, 2012; Scarinci, Worrall, & Hickson, 2008; Strawbridge, Wallhagen, Shema, & Kaplan, 2000). Hearing impairment has also been associated with lower earning capacity across a lifespan (Access Economics, 2006). The cumulative effect of these named consequences and findings led to hearing impairment being listed in the top 10 causes of disease burden in Australia (Australian Institute of Health and Welfare, 2010).

### 2.2.2 Audiological rehabilitation

Many of the consequences of hearing impairment can be alleviated or improved by successful audiological rehabilitation (Chisolm et al., 2007; Gopinath et al., 2012; Humes, Krull, Wong, & Hickson, 2012; Mulrow et al., 1990; Vuorialho, 2006). The most common type of audiological rehabilitation is the hearing aid (Chisolm, Johnson, et al., 2007); however, there are other rehabilitation options, (e.g., hearing assistive technology and communication education) which, used independently or concurrently with hearing aids, lead to positive outcomes for adults with hearing impairment and their companions.

#### 2.2.2.1 Hearing aids

Efficacy of hearing aids has been extensively evidenced (Abrams et al., 2005; Chia et al., 2007; Chisolm, Abrams, & McArdle, 2004; Gopinath et al., 2012; Mulrow et al., 1990; Vuorialho, 2006). Hearing aids not only increase audibility, but also improve quality of life (Gopinath et al., 2012) and are considered a cost-effective means of improving hearing ability (Mulrow et al., 1990). For example, Vuorialho et al (2006) examined the benefits of hearing aid fitting in elderly clients. Between 40-60% of participants reported a reduction in social and emotional problems and
thus, a significant reduction in hearing disability. In a systematic review and meta-analysis of previous research, Chisolm et al (2007) reported that hearing aid use decreased psychosocial and emotional effects of hearing impairment and increased health-related quality of life.

2.2.2.2 Hearing assistance technology

Equipment and devices, which are not necessarily worn at ear-level, or appropriate for multiple listening environments, are often termed hearing assistance technology (Chisolm, Noe, McArdle, & Abrams, 2007). Devices such as television headphones, amplified telephones or personal amplifiers can be used without hearing aids; however, some hearing assistance technology can be used in conjunction with hearing aids. When compared to hearing aids, little research has been conducted on hearing assistance technology. In a recent study, Harkins and Tucker (2007) surveyed a group of 423 adult hearing aid or cochlear implant users about their use of assistive hearing technology. Fifty-eight percent of respondents reported using hearing assistance technology in the past two years and respondents reported that these devices, when used in conjunction with hearing aids, provided substantial benefit in situations where the speaker was close by (Harkins & Tucker, 2007). Such benefits remained constant over time and thus, the authors propose that hearing assistance technology should be considered a key component of audiological rehabilitation (Chisolm et al., 2007; Kricos, 2006).

2.2.2.3 Communication education programs

Programs that specifically address psychosocial and functional needs of older adults with acquired hearing impairment are beneficial to the person with hearing impairment and those close to them. Such programs result in outcomes similar to hearing aid fitting in the short-term, increase the likelihood of persisting with hearing aids (Chisolm et al., 2004; Hickson, Laplante-Lévesque, & Wong, 2013) and are a cost-effective addition or alternative to amplification (Abrams, Chisolm, & McArdle, 2002). Communication programs can be individual or group based and typically focus on managing communication environments, maximising speech
perception and/or educating about hearing assistance technology or hearing aids (Chisolm et al., 2004; Gagné & Jennings, 2008; Preminger & Yoo, 2010). There are many published programs, yet few have undergone efficacy testing.

Communication education programs address a wide range of content and are provided in many forms. For example, the Active Communication Education program (ACE) (Hickson, Worrall, & Scarinci, 2007), online rehabilitation programs (Thorén et al., 2011) and programs using Cognitive Behavioural Therapy (Garnefski & Kraaij, 2012) have all been shown to improve patient outcomes. Specifically, group rehabilitation programs, as reviewed by Hawkins (2005) and Hickson (2013), reduce patient outcomes such as activity limitation and participation restriction, particularly in the short-term. These programs attend to additional needs of older adults not typically covered in audiology consultations. Importantly, these programs also provide choices for patients which may be more individualised to their stage of readiness (Laplante-Lévesque, Hickson, & Worrall, 2012). Thus, it is argued that communication education programs are appropriate to recommend to adults with hearing impairment irrespective of the decision to obtain hearing aids.

2.2.3 Audiological rehabilitation uptake and success

Despite hearing aids being the most common form of rehabilitation provided to older adults, there are significant limitations to focussing solely on devices. The majority of adults with presbycusis do not seek help for their impairment and those who do, frequently find their attempt unsuccessful or unsatisfactory (Davis et al., 2007). In Australia, it was found that 39% of adults with hearing impairment had never consulted a health professional about their hearing difficulties (Hartley, Rochtchina, Newall, Golding, & Mitchell, 2010; Schneider et al., 2010). Additionally, a study of the actions taken by 193 adults who failed a telephone-based hearing screening revealed that just 36% sought professional help for their hearing impairment within 5 months following the failed screening (Meyer et al., 2011). In
fact, it has previously been reported that adults typically wait 10 years after noticing their hearing impairment before seeking help (Davis et al., 2007).

Once help is sought, some adults decide against the recommendation of hearing aids or experience suboptimal outcomes having obtained hearing aids. In Australia, Hartley (2005) found that less than half of adults aged over 50 with hearing impairment own hearing aids. Chien and Lin (2012) reported on hearing aid use from the National Health and Nutritional Examination Surveys in the United States of America. These authors found that hearing aid usage increased with age from 14.3% of adults over the age of 50 to 22.1% of adults over the age of 80. These rates remain much lower than the prevalence of hearing impairment. Consequently, over 20 million adults in the United States with a hearing impairment do not use hearing aids. It is important to note that some of the adults included in Chien and Lin’s study may have owned hearing aids but did not wear them. Nevertheless, there is emerging evidence that use of hearing aids by those who own them is improving. For example, in Australian, in 2007 it was reported that 23% of hearing aid owners did not use their device (Chia et al., 2007), whereas in 2012 it was reported that 13% of hearing aid owners did not wear their hearing aids (Dillon, Hickson, & Lloyd, 2012). In any case, this is a substantial proportion of people who are not achieving optimal rehabilitation of their hearing impairment.

As a result of low uptake, use and satisfaction with hearing aids, hearing impairment is a significant health concern that needs to be efficiently and effectively addressed. In many countries, the ineffective provision of audiological rehabilitation is costly to third-party payers and society. Indeed, in Australia, the federal government supplies extensive funding for the provision of hearing services to eligible Australians under the Office of Hearing Services scheme (as described in Chapter 1, section 1.4) and thus, recently conducted a Senate inquiry into hearing health. A resultant recommendation of this inquiry was that “the Australian Government prioritise and fund research into the reasons for the under use of hearing aids, and develop practicable strategies for hearing health
practitioners to help overcome the under use in the community” (Senate Community Affairs References Committee, 2010, p. 20).

Factors influencing adherence to health recommendations has been widely studied. Sebaté (2003), on behalf of the World Health Organisation, proposed five interacting factors that influence an individual’s ability and willingness to adhere to a health recommendation:

a) Social and economic factors,
b) Healthcare team and system-related factors,
c) Condition-related factors,
d) Therapy-related factors, and
e) Patient-related factors.

Sebaté reports that across many healthcare domains, typically, patient-related factors have received the most research attention. However, the remaining four factors are equally as important and influential and are therefore in need of further investigation to maximise patient adherence to health recommendations.

In audiology, extensive research has focussed on therapy-related factors such as hearing aids, their function, ability and features, and condition-related factors such as speech perception ability (Humes, Wilson, & Humes, 2003). More recently, patient-related factors such as personality, motivation, attitudes, and social factors such as stigma have received attention (Jenstad & Moon, 2011; Knudsen et al., 2010; McCormack & Fortnam, 2013; Meyer & Hickson, 2012; Hickson, Meyer, Lovelock, Lampert & Kahn, 2014; Meyer, Hickson, Lovelock, Lampert, & Khan, 2014; Saunders, Chisholm, & Wallhagen, 2012). Factors relating to the healthcare professional and the health system are poorly represented in the audiology literature and thus, poorly understood (Knudsen, Öberg, Nielsen, & Kramer, 2010). Outside of audiology, the role of the practitioners and their interactions with patients has been extensively researched (Bertakis & Azari, 2011; Hall & Roter, 2002; Mead & Bower, 2002; Ong, DeHaes, Hoos, & Lammes, 1995; Roter et al.,
1997; Stewart, 1995; Stewart et al., 2000) and the importance of quality communication and a strong relationship is associated with improved outcomes for older adult patients, including adherence to treatment (Bertakis & Azari, 2011; Haskard Zolnierek & DiMatteo, 2009; Williams, Haskard, & DiMatteo, 2007). Patient-audiologist communication is therefore an important area of investigation and is discussed in the following section.

2.3 Patient-audiologist interactions

The lack of studies on the impact of the audiologist and patient-audiologist interactions represents a gap in the audiological rehabilitation literature. This thesis considers the critical juncture when an older adult seeks help for hearing impairment. It considers the barriers and facilitators observable in patient-audiologist interactions which may be implicated in successful audiological rehabilitation outcomes.

Existing research on the audiologist’s communication provides valuable insight into the behaviours and processes that occur in audiology consultations. The importance of effective information exchange has been highlighted by multiple authors as important for optimising patient understanding and recall (Margolis, 2004; Watermeyer, Kanji, & Cohen, 2012), assisting patients to adjust to their diagnosis (English, 2008) and the provision of information about rehabilitation options (Laplante-Lévesque, Hickson, & Worrall, 2010a; Poost-Foroosh, Jennings, Shaw, Meston, & Cheesman, 2011; Trychin, 2012). In attempting to understand a patient’s perspective, many authors advocate that audiologists should address the psychosocial and functional impact of hearing impairment on the patient and their companion (English, 2000; Gagné et al., 2009; Laplante-Lévesque et al., 2010a; Preminger & Meeks, 2012; Saunders & Forsline, 2012; Scarinci et al., 2008); and yet this is rarely observed in the literature (Trychin, 2012). Aside from information exchange skills, audiology literature reveals a paucity of research and education relating to relationship building and personal-adjustment counselling (Culpepper, Mendel, & McCarthy, 1994). In addition, audiologists report mixed levels of
confidence in using these skills clinically. For example, the majority of audiologists surveyed by Martin, Barr and Bernstein (1992) reported feeling ill-prepared to counsel adults with hearing impairment about coping with hearing-related psychosocial consequences.

Evidence relating to patient-audiologist interactions may usefully be grouped into three areas: 1) patient preferences for the nature of audiologist interactions, 2) audiologist preferences for the nature of interactions and 3) evidence for issues within patient-audiologist interactions. These three areas are discussed below.

2.3.1 Patient preferences for the nature of audiologist interactions

Three studies involving adult patients have revealed that audiologist skills are valued and perceived as influential in hearing aid uptake. Laplante-Lévesque, Hickson and Worrall (2010b) interviewed 22 first-time hearing help-seekers about their experience of shared decision-making. This was part of a clinical trial wherein each participant was offered the choice of hearing aids, of communication training or of no action. Participants reported valuing trust in the clinician and also having an opportunity to tell their story (i.e., having a clinician who was interested and listened). The behaviours which underpinned each of these themes were consistent with previous literature on patient-centred care (Mead & Bower, 2000b). However, this study did not investigate the influence of these behaviours on uptake, nor did it explore patients’ preferences for patient-centred skills and processes over alternatives (such as practitioner-centred or paternalistic decision-making) which may also occur in audiological settings.

Poost-Foroosh et al (2011) gained the perspective of adult patients and audiologists on factors within patient-audiologist interactions which influence hearing aid adoption. Eight dimensions were identified from separate focus groups with either 13 adult patients who had recently received a hearing aid recommendation, or 10 audiologists who routinely fitted hearing aids. Six of the eight dimensions related to audiologists’ skills and the remaining two dimensions were process or system specific. For example, audiologists who ensured client
comfort, who understood the clients’ needs, who treated the patient as an individual, who did not impose pressure, who were effective at exchanging information, who supported shared decision-making and who showed patient-centred skills, were likely to positively influence hearing aid uptake. Overall, these dimensions were viewed as either facilitating client empowerment or facilitating client-centred interactions.

A further qualitative study by Laplante-Lévesque and colleagues (2012) investigating audiological help-seeking and rehabilitation of hearing impairment reported findings consistent with those of Poost-Foroosh et al (2011). A strength of this study was that participants had varied experiences with hearing help-seeking and rehabilitation (i.e., ranging from no experience to experienced hearing aid users) and were interviewed individually. Through inductive content analysis of the transcribed interviews, the authors reported that the nature of the patient-practitioner relationship and interpersonal skills of the audiologist were valued by participants and were seen as influential in hearing help-seeking (Laplante-Lévesque et al., 2012b).

### 2.3.2 Audiologist preferences for the nature of interactions

Audiologists also believe that interaction skills are important. Audiologist and hearing instrument practitioners were surveyed by Kirkwood (2005) and 39% of respondents believed that a hearing healthcare professional’s counselling skills were the most important factor in producing a successful hearing aid outcome. While the definition of counselling skills was not provided, this result suggests that clinicians were aware of their abilities and responsibilities in providing care to patients. A recent qualitative study by Laplante-Lévesque, Jensen, Dawes and Nielsen (2013) compared and contrasted patient and audiologist perspectives on what was considered important in facilitating optimal hearing aid use. While both groups described the role of the audiologist (and patient-audiologist interaction), audiologists placed greater emphasis on the patient-audiologist relationship than did the patient group. The authors concluded that this divergence was based on
patients’ perception that audiologists were no more than hearing aid dispensers. The authors concluded that this result emphasised that audiologists may not be doing enough, outside of providing hearing aids, to maximise the therapeutic value of their interaction with patients (Laplante-Lévesque et al., 2013). Interestingly, in this study, audiologists reported feeling they were skilled at developing a therapeutic relationship with patients and skilled at understanding patient needs. Similar findings were presented by Laplante-Lévesque, Hickson and Grenness (2014) who surveyed 663 audiologists in Australia about their preferences for providing patient-centred care. Overwhelmingly, audiologists reported a high preference for patient-centredness. This preference was strongest amongst more experienced audiologists or audiologists who worked in education and community health.

2.3.3 Evidence for issues within patient-audiologist interactions

From a theoretical perspective, a number of authors have advocated the importance of interaction and communication skills for audiologists, but nevertheless suggest a skill deficit exists. For example, Margolis states:

“Although the profession(s) of audiology (and speech pathology) are solely concerned with the communicative wellbeing of our patients, our own communication to patients is disordered. We complain that our counselling efforts are not reimbursed, but an analysis of our methods and outcomes would probably not convince payers that we are providing a valuable reimbursable service when we verbally present complex information in a format that is known to be ineffective”

(Margolis, 2004, p. 11).

The ineffective format Margolis refers to was a focus on unilateral “informational counselling” (provision of extensive information) as opposed to a two-way information exchange augmented with “personal-adjustment counselling” (relationship building and psychosocial communication). Studies suggest that audiologists tend to favour informational counselling over personal-adjustment counselling (English, Mendel, Rojeski, & Hornak, 1999; Watermeyer et al., 2012). A
focus on unilateral provision of complex information is consistent with definitions of patient-practitioner models in medicine termed practitioner-centred. Practitioner-centred interactions, in contrast to patient-centred interactions, tend to have a biomedical focus where the diagnosis and treatment of a disorder by the expert health professional dominates (Roter et al., 1997). Early in the 20th century the medical profession functioned in a practitioner-centred fashion; however, more recently, patient-centred interactions are widely advocated (Mead & Bower, 2000b). This shift can be seen not only in clinical practice, but also in education of practitioners, in healthcare organisations and in policy-making (Levinson, Lesser, & Epstein, 2010).

While a number of authors suggest there is room for improvement in patient-audiologist interactions, few studies have observed audiological rehabilitation consultations and measured the interaction and communication occurring therein. Several authors have flagged this gap in knowledge (Erdman, 2009; Knudsen et al., 2010; Saunders & Forsline, 2012; Trychin, 2012).

There are two studies which have audio-recorded patient-audiologist interactions (Nair & Cienkowski, 2010; Watermeyer et al., 2012). Both of these studies share the conclusion that communication breakdown occurs inadvertently and that suboptimal communication by the audiologist is implicated. Information exchange was examined in adult routine hearing aid consultations (Nair & Cienkowski, 2010). In this study, 12 adult routine hearing aid consultations were audio-recorded and transcribed. The level of oral health literacy and language complexity of both audiologists and adult patients was then examined. Results suggested that audiologists’ language tended to be too complex for patients (Nair & Cienkowski, 2010). A limitation to this method was that no separate measure of health literacy was obtained. Thus, it was assumed that patients’ oral health literacy was representative of actual health literacy. This is a questionable assumption, particularly if the audiologist dominated the conversation. Patients’ literacy levels may have been underrated due to their limited opportunity to participate.
Nevertheless, this study provided powerful evidence that ineffective information exchange occurs in adult consultations.

Audiologist communication was also examined in a paediatric context (Watermeyer et al., 2012). Verbal communication of diagnosis and recommendations between four audiologists and five carers of paediatric patients were analysed using conversation analysis (Watermeyer et al., 2012). Results revealed that audiologists included detailed explanations of auditory anatomy, tests and the audiogram, alongside detailed recommendations. Interviews conducted with each of the carers after each consultation revealed that the lack of tailoring and individualisation of communication influenced carer recall and understanding. While this study was based on a small sample size, the depth of analysis reveals important information about how audiologist communication currently occurs and calls for future improvement. Results highlighted the need to further investigate the nature of patient-audiologist interactions.

2.3.4 Summary

The prevalence and consequences of untreated hearing impairment are well documented; yet a lack of understanding of the myriad of factors influencing help-seeking and uptake of audiological rehabilitation remains. One area which has received little empirical attention is the influence of the patient-audiologist interaction. In other areas of healthcare, patient-practitioner interactions have been widely explored. The limited research into patient-audiologist interactions suggests that communication skills are important for treatment uptake and success. Adult patients and audiologists have a preference for interaction and communication behaviours that are considered to be patient-centred. Despite these preferences, there is some evidence to suggest that the preferred behaviours are not routinely evidenced during audiological rehabilitation consultations. The meaning of patient-centred care is further discussed in the following section of this chapter.
2.4 A framework for quality patient-practitioner interactions: Patient-centred care

For patient-practitioner communication to be considered of high quality, the practitioner requires a number of specific skills across three domains: relationship building, information exchange and decision-making (Ong et al., 1995). Ideally, to build a trusting relationship, practitioners should encourage patient input by asking their opinion and permission and by maximising listening time (Roter et al., 1997) and patients’ psychosocial concerns and fears should be addressed with appropriate empathy (Stewart, 1995; Hall et al., 1999; Mead & Bower, 2000). The content of information exchanged between patient and practitioner needs to be balanced between biomedical topics and psychosocial topics (Roter et al., 1997). That is, information should be meaningful, functional and of appropriate complexity. The control of decision-making should be shared; decisions are best made by listening, by inviting collaboration (Mead & Bower, 2000) and by providing options in a nonjudgmental manner (Elwyn et al., 2012). The umbrella term for these skills and behaviours is “patient-centred care”.

Patient-centred care is proposed as a philosophical framework through which quality patient-audiologist interaction and communication can be defined and observed. Due to its positive effect on health outcomes, patient-centred care is widely advocated in the management of chronic health conditions (Michie, Miles, & Weinman, 2003). However, the implementation of patient-centred care in many healthcare sectors is far from complete (Gzil et al., 2007). Audiological rehabilitation is one area where patient-centred care is relevant but sparsely investigated. To clarify the meaning and clinical implications of patient-centred care for audiologists working in rehabilitation, this section presents a review of the existing literature from other areas of healthcare. This chapter addresses five questions:

a) What is patient-centred care?
b) How is patient-centred care measured?
c) What are the outcomes of patient-centred care?
d) What are the factors contributing to patient-centred care?
e) What are the implications for audiological rehabilitation?

2.4.1 What is patient-centred care?

The term “patient-centred care” originated from psychological counselling literature (Rogers, 1965). Conceptually, patient-centred care suggests that patients should be encouraged to be active participants in their healthcare through the creation of a power balanced, therapeutic relationship with their health professionals (Mead & Bower, 2000). Patient-centred care is contrary to the more traditional mode of healthcare, termed “practitioner-centred”. As discussed previously, a practitioner-centred approach is characterised by a power imbalance towards the expert health professional, whose focus is almost exclusively on biomedical problem solving wherein the patient is a passive recipient of treatment and management decisions (Mead & Bower, 2000b). While practitioner-centred approaches may have been well intentioned, researchers and policy makers have described such practices pejoratively, as “paternalistic” (Coulter, 1999). The reason for this is that practitioner-centred models of patient-practitioner interaction contradict current evidence-based and ethical frameworks where patients are considered holistically and where patient involvement in care leads to optimal outcomes (Goodyear-Smith & Buetow, 2001).

The popularity of the term “patient-centred care” has increased since the 1970s. It is currently used for policy purposes as a definition of quality healthcare (Campbell, Roland, & Beutow, 2000). This increased level of interest has stimulated numerous attempts to define the term, to implement and to measure the adoption and outcomes of this approach. To address this literature, this chapter will firstly focus on research from which definitions of patient-centred care in different health professions were developed. These definitions are valuable to both clinicians and educators as they highlight particular dimensions of practice,
provide structure to clinical methods and aid in prioritising clinical decisions and processes (Stewart et al., 2003).

Definitions of patient-centred care differ. This difference in definition stems from a number of factors. One factor is the area of healthcare specified in the definition (e.g., medicine, nursing or allied health). Three existing definitions of patient-centred care are displayed in Table 2.1. For example, in medicine, Mead and Bower (2000) focus on behaviours relevant to the patient-practitioner interface, whereas in occupational therapy, Law, Baptiste and colleagues (1995) take a broader perspective and include organisational and community issues, such as access and cultural respect. A second factor is the perspective the definition reflects, for instance patients’ perspectives, policy/economic perspectives or clinicians’ perspectives. Policy-level perspectives result in definitions which focus on organisation-wide values and processes; such definitions contain implicit assumptions that health professionals working in an organisation hold a shared understanding of patient-centred clinical behaviours (Australian Commission on Safety and Quality in Healthcare, 2010). In contrast, definitions from patients’ perspectives provide an insider’s view of specific clinical behaviours and processes (Cott, 2004). The method by which a definition is developed can influence its applicability (e.g., from expert opinion, from a singular study or from many studies). It is unlikely that a definition developed from a single study can encompass the complexity of, and intricate differences between, health professions (Hughes, Bamford, & May, 2008). For the purpose of this thesis, definitions that are based on patient or clinician perspectives are deemed more relevant than those which present policy-level perspectives. This decision was made to minimise the impact of assumptions regarding clinical processes and behaviours made in policy or organisation-level definitions.

Ideally, patient-centred care needs to be defined specifically for audiological rehabilitation. However, this literature review identified that while researchers and practitioners have advocated for patient-centred care in audiological
rehabilitation (English, 2005; Hickson, 2012; Laplante-Lévesque et al., 2012a), detailed definitions are lacking.
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<thead>
<tr>
<th>FIELD</th>
<th>THEMES</th>
<th>EXPLANATIONS</th>
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<tbody>
<tr>
<td><strong>Medicine</strong></td>
<td>1. Biopsychosocial perspective</td>
<td>Healthcare should take into account a person’s psychological and social states as well as the biological impact of the health condition.</td>
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<tr>
<td></td>
<td>2. Patient as person</td>
<td>The health professional should try to understand the patient as an individual within his or her own context.</td>
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<td></td>
<td>3. Sharing power and responsibility</td>
<td>Importance is placed on the patient’s lay knowledge and self-expertise and encourages equality in power.</td>
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<td></td>
<td>4. Therapeutic alliance</td>
<td>The relationship between health professional and patient is important and has in itself therapeutic effects.</td>
</tr>
<tr>
<td></td>
<td>5. Practitioner as person</td>
<td>The health professional brings value and subjectivity to the relationship; self-awareness is important.</td>
</tr>
<tr>
<td><strong>Occupational therapy</strong></td>
<td>1. Autonomy and choice</td>
<td>A patient’s opinion is sought and respected. A patient has a right to receive appropriate information to facilitate involvement in decisions.</td>
</tr>
<tr>
<td>(Law, Baptiste et al., 1995)</td>
<td>2. Partnership and responsibility</td>
<td>Each person in the partnership brings his or her own expert knowledge and skills. Everyone involved in the partnership has responsibilities.</td>
</tr>
<tr>
<td></td>
<td>3. Enablement</td>
<td>Functional capabilities rather than deficiencies and satisfaction are measured outcomes of the patient’s healthcare.</td>
</tr>
<tr>
<td></td>
<td>4. Contextual congruence</td>
<td>The health professional understands the patient’s values, interests and roles in their environment and culture.</td>
</tr>
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<td></td>
<td>5. Accessibility and flexibility</td>
<td>Health professionals advocate for equitable access to services within a timely manner.</td>
</tr>
<tr>
<td></td>
<td>6. Respect for diversity</td>
<td>A respect the differences in beliefs and values between health professional and patient exists. The health professional is aware of power balances.</td>
</tr>
<tr>
<td><strong>Physiotherapy</strong></td>
<td>1. Communication</td>
<td>Quality communication exists between the health professional and patient at all times. This feeds into all other themes.</td>
</tr>
<tr>
<td>(Cooper, Smith et al., 2008)</td>
<td>2. Individual care</td>
<td>The health professional listens, understands, and gets to know the patient. The patient able to ask questions of the physiotherapist.</td>
</tr>
<tr>
<td></td>
<td>3. Information Sharing</td>
<td>Information is provided to the patient by the health professional about their condition and the patient shares what their health/illness means to them personally.</td>
</tr>
<tr>
<td></td>
<td>4. Decision-making</td>
<td>Patients often prefer the health professional (as the expert) to make decisions but patients want to be well informed about why these decisions are being made.</td>
</tr>
<tr>
<td></td>
<td>5. The physiotherapist</td>
<td>The health professional is valued for having competence (skills and knowledge) and interpersonal skills (caring and interested)</td>
</tr>
<tr>
<td></td>
<td>6. Organisation</td>
<td>A patient has access to and appropriate time with, the health professional over a period of time.</td>
</tr>
</tbody>
</table>
In light of this deficiency, definitions used in other fields of primary care are worthy of consideration. Table 2.1 provides a summary of themes and explanations for three definitions of patient-centred care within medicine, occupational therapy and physiotherapy. In the field of primary care medicine, a popular definition is derived from Mead and Bower's (2000) conceptual framework of patient-centred medicine, developed from an extensive review of empirical literature. The authors reviewed studies published from 1969 to 1998, where quantitative measures of patient-centredness were taken. The studies used one or both of the following methodologies: questionnaires or observational techniques. The authors present five dimensions of patient-centred care. The first two dimensions (biopsychosocial and patient as person) relate to the patient's perspective of their health condition; the next two dimensions (sharing power and responsibility and the therapeutic alliance) focus on the interaction between the patient and practitioner; and the final dimension (practitioner as person) considers the influence of the health professional on patient-centred care. While Mead and Bower's (2000) model is generally well accepted in primary care medicine, there are a number of differences between patient-centred care in primary care and rehabilitation. The most prominent is that rehabilitation involves more ongoing, longer-term care (Gzil et al., 2007).

Occupational therapy and physiotherapy provide relevant examples of defining and implementing patient-centred approaches in ongoing management of chronic conditions. The Canadian Association of Occupational Therapists is responsible for two decades of investigation and clinical application of patient-centred practice (which they termed client-centred practice). Since 1990, guidelines describing a seven stage process to patient-centredness in occupational therapy have existed and since been revised (Townsend, 1998). Law, Baptiste and Mills (1995) are responsible for developing the theoretical model of client-centredness from which these guidelines were developed. They report six key concepts relating to client-centredness in occupational therapy: autonomy/choice; partnership and responsibility; enablement; contextual congruence; accessibility and flexibility; and respect for diversity. Since this publication, a framework for implementation
of ideas and actions has been developed (Restall, Ripat, & Stern, 2003) and publications have been created for the purpose of enhancing conceptual understanding amongst therapists (Sumson & Law, 2006).

Three notable studies report models of patient-centredness in physiotherapy. All three recognised that an iterative methodology was required to ensure results were grounded in patients' beliefs, in contrast to Mead and Bower's methodology. The patient groups were different in each of these studies. Cooper and colleagues (2008) interviewed UK National Health Service patients with chronic low back pain on patient-centred physiotherapy. Kidd, Bond and Bell (2011) interviewed physiotherapy patients who received musculoskeletal treatment. This study was motivated by the need to improve patient satisfaction. The third study in physiotherapy, conducted by Cott (2004), used focus groups to gather the perspectives of physiotherapy patients with long-term physical disabilities. All three models describe three similar features of patient-centred care in physiotherapy: 1) aspects of the patient-practitioner relationship, such as individualised communication, information sharing and decision-making; 2) qualities of the practitioner, such as technical competence and interpersonal skills; and 3) the influence of clinical pathways or organisational structure.

Similarities between inter professional definitions of patient-centredness are also common. Syntheses of 210 review articles on patient-centredness or related types of centredness (such as client, family or person) revealed ten recurrent themes (Hughes et al., 2008). These ten themes are summarised in Table 2.2. However, Hughes et al (2008) emphasised the importance of profession specific definitions of patient-centred care to capture the practical nuances of different health professions. Recently, in the field of speech pathology, Davidson, & Worrall, (2013) have discussed the ten themes espoused by Hughes, Bamford and May (2008) in relation to client-centred care for people with aphasia. The need for research that investigates patient-centredness specific to audiological rehabilitation services for people with chronic hearing impairment has yet to receive similar attention.
<table>
<thead>
<tr>
<th>THEME</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respect for individuality and values</td>
<td>Recognises the importance of valuing people as individuals with awareness of differences, values, culture, their unique strengths, needs and rights, including the right to dignity and privacy.</td>
</tr>
<tr>
<td>Meaning</td>
<td>Accepts the unique perspective, reflecting the phenomenological and subjective nature of the person’s experience, with self-defined goals and a potentially shared understanding of the meaning of illness.</td>
</tr>
<tr>
<td>Therapeutic alliance</td>
<td>Involves the possibility of genuine empathy and unconditional positive regard. Therapeutic alliance is based on respect for personhood, with warmth, trust, and openness; care, honesty, the instillation of hope and confidence. Non-judgmental relationships should encourage competency, and a shared language, where the professional is a facilitator.</td>
</tr>
<tr>
<td>Social context and relationships</td>
<td>Attends to our social nature as people, with an emphasis on relationships, on our situated context of interpersonal, interconnected, mutual interdependence. Hence family and carers’ needs are recognised, as the relevance of roles and life stages. The importance of seeing the network of relationships as a whole is crucial.</td>
</tr>
<tr>
<td>Inclusive model of health and well being</td>
<td>Broader than diagnosis and treatment, with protection and safety for the vulnerable, this theme involves comfort, attachments, occupation, identity and inclusion, with attention to wellbeing and a biopsychosocial model of the person as a whole. The model includes an integrated holistic understanding of the individuals' unique world with recognition of his or her idiosyncratic and broader life setting. It also includes attention to the prevention of diseases, health promotion and the improvement of quality of life.</td>
</tr>
<tr>
<td>Expert lay knowledge</td>
<td>The legitimacy of individual’s or the family’s expert knowledge and experience is recognised. The possibility of consensus through negotiation, compromise and active participation is encouraged. In addition, therefore, there is the possibility of service users contributing to service and professional development.</td>
</tr>
<tr>
<td>Shared responsibility</td>
<td>This suggests the sharing of power, responsibility and control, with mutual agreement on plans and reciprocity, with involvement in decision-making, and an orientation towards the individual situation in context, but open to collaboration and partnership. Hence, a type of consumerism, with user involvement and awareness of rights.</td>
</tr>
<tr>
<td>Communication</td>
<td>This theme encourages communication with careful, sensitive, interactional dialogue, observational skills and authentic contact, including attentive listening, with the profession of accessible and unbiased information provided in ways that are affirming and useful.</td>
</tr>
<tr>
<td>Autonomy</td>
<td>This includes the person’s ability to make his or her own decision, with independence and recognition that individual and families should be encouraged to live out their lives, make their own choices, in accordance with the principals of self-determination, enhancing their control and independence in the process of receiving care.</td>
</tr>
<tr>
<td>Professional as a person</td>
<td>The emphasis is on valuing staff as well as service users and on the doctor or professional’s role as a person with emotions, who may need support to enable self-awareness and meaningful partnerships.</td>
</tr>
</tbody>
</table>
2.4.2 How is patient-centred care measured?

An important element of implementing patient-centred care is measuring and examining the quality of interaction between the patient and practitioner. Despite extensive literature on patient-centred care, there is no consensus on the gold standard for measuring its presence or quality. Methods of measuring patient-centredness include observational techniques using audio or video footage, and patient or practitioner questionnaires. Observational techniques are used most commonly. Over 50 instruments exist, although they vary in their validity and reliability (see review by Boon and Stewart (1998)). Observational tools examine the nature of the interaction by means of rating scales, checklists and verbal/nonverbal coding schemes (Mead & Bower, 2000a). In addition, patient or practitioner questionnaires allow for the comparison of perspectives, or comparison of either or both perspectives with an observed measure of patient-centredness (Krupat, Frankel, Stein, & Irish, 2006). In many cases, the measurement of patient-centredness is accompanied by a measure of its effect on outcome, allowing investigators to clarify relationships between patient-practitioner interactions and health outcomes for the patient (Bertakis & Azari, 2011).

While no one method for measuring patient-centred care claims to answer all questions, or be appropriate for all contexts, little effort has been made to reach agreement on a gold standard measurement system. For this reason, Roter and Hall (2006) claim that no single system that can answer all questions about the presence and nature of patient-centred care in patient-practitioner interactions will emerge in the near future. Given the current range of methods used, it is imperative that researchers adopt a system based on strong theoretical underpinnings, which is flexible enough to suit the context and which includes concrete observation of communication elements. Literature surrounding interaction analysis systems is further discussed in Chapter 3 where the rationale for the methods used in this thesis is presented.
2.4.3 What are the outcomes of patient-centred care?

The impact of patient-centred care on patient satisfaction, patient adherence and health outcomes, and practitioner outcomes are summarised in the following subsections.

2.4.3.1 Patient satisfaction

In a study by Swenson et al (2004), sixty-nine percent of patients reported a preference for a patient-centred interaction with their medical practitioner, whereas interactions that were non-patient-centred had the lowest rates of satisfaction (Swenson et al., 2004). Numerous studies have reported an association between patient-centred interactions and improved patient satisfaction (Michie et al., 2003; Ong et al., 1995; Stewart et al., 2000; Wolff, Lehman, Quinlin, & Hoffman, 2008) and likewise, an association between less patient-centred interactions and reduced satisfaction (Krupat et al., 2000). Since not all patients prefer patient-centred interactions (Swenson et al., 2004), Krupat (2006) suggests that patient satisfaction should be based on whether the practitioner shows an understanding of and flexibility towards the behavioural preferences for each individual patient (e.g., amount of involvement in decision-making). Agreement between patient and practitioner preferences for patient-centredness has been associated with improved patient satisfaction (Krupat, Bell, Kravitz, Thom, & Azari, 2001; Krupat et al., 2000). The vast majority of patient-centred care and satisfaction research has been conducted in primary medical care and, as such, direct inferences to allied health may not be drawn.

2.4.3.2 Patient adherence and health outcomes

Adherence to treatment, be it medication or a behaviour change regimen, has been directly linked to improved overall health outcomes, particularly for people with chronic health conditions (DiMatteo, Giordani, Lepper, & Croghan, 2002). Michie and colleagues (2003) reviewed 30 studies on physical and psychological outcomes from patient-practitioner interactions. It was concluded that motivating
patients into action by involving them in decisions led to improved adherence and subsequently, had a greater positive impact on health outcomes than simply listening to the patient’s perspective. Moreover, improvements were seen in physiological responses, such as reduced blood pressure (Michie et al., 2003). Deber and colleagues (2007) similarly reported that patient involvement in their own care increased when the practitioner involved them to a greater degree. Other authors reported that understanding the patient’s perspective was correlated with treatment adherence and increased self-management (Robinson, Callister, Berry, & Dearing, 2008). There is also evidence that patients’ self-reported health improves with greater patient involvement in their treatment decision-making (Michie et al., 2003).

Improvements in health outcomes have been measured across a number of health professions. In a review of publications from 1983-1993 where patient-doctor interactions and/or communication were investigated with patient health outcomes as the dependent variable, Stewart (1995) reported that over three quarters of the 143 relevant studies found an improvement in patient outcomes when communication was ‘effective’ and ‘patient-centred’; however the author did not provide explicit definitions of these terms. There were a number of clinical settings included (e.g., general practice medicine, community health centres and general hospital) and the patient outcomes measured varied accordingly (e.g., symptom resolution, emotional health and physiological measurements). Stewart (1995) concluded that good patient-practitioner communication had positive effects for patients’ emotional health, symptom resolution and function of patients with ongoing health concerns. Specifically, the quality of history-taking and discussion of a management plan were most influential on patient outcomes. This chapter provides strong evidence of the measurable positive influence of patient-centred practitioner behaviours on patient outcomes. However, the analysis conducted by Stewart (1995) has since been criticised for including studies that measured skills related to, or contributing to patient-centred care (i.e., communication behaviours, amount of information given or frequency of patient
statements), but did not explicitly measure patient-centred behaviours as a whole (Mead & Bower, 2002).

Further to the verbal communication skills discussed by Stewart (1995), interpersonal behaviours have been found to positively influence outcomes. Beck (2002) reviewed medical practitioner behaviours and reported that rapport-related behaviours (e.g., showing empathy and open nonverbal communication) decreased degree of discomfort and concern about a health condition. Similar behaviours were also influential on other patient outcomes such as development of a trusting relationship with their practitioner (Bertakis, Callahan, Helms, Azari, & Robbins, 1993) and reduction of anxiety (Roter et al., 1995).

### 2.4.3.3 Practitioner outcomes

Research into outcomes for the practitioner focusses on two areas: malpractice claims and satisfaction. A link between medical malpractice claims and a lack of patient-centred care has been found (Levinson, Roter, Mullooly, & Frankel, 1997). Patients were more likely to file malpractice claims if they did not receive sufficient time, received an inadequate explanation, felt unsupported and/or lacked an emotional connection with the medical practitioner (Stewart et al., 2003). Practitioner satisfaction has not received the same attention as patient satisfaction, however, in one cohort study, it was found that medical practitioners rated patient-practitioner interactions which included even a moderate amount of affective talk and therapeutic relationship building as more satisfying (Roter et al., 1997).

In summary, reported outcomes of patient-centred care range from improvements for patients and practitioner such as:

a) Greater patient and practitioner satisfaction with treatment,
b) Greater patient adherence to treatment,
c) Increased patient willingness to self-manage,
d) Improved patient health status,
2.4.4 What are the factors contributing to patient-centred care?

Researchers have warned against assuming all patients want the same type of relationship with their practitioner (Krupat, 2006). Individual differences in patient preferences precipitate the need to respect individual wishes. In contrast, many practitioners do not engage in patient-centred behaviour at all, despite many patients preferring it (Roter & Hall, 2006). The following section describes the four categories of factors that are reported to influence the occurrence of patient-centred care in a health encounter: a) patient, b) practitioner, c) organisational, and d) research and implementation-related factors.

2.4.4.1 Patient-related factors

Patient-related factors that have been found to influence the implementation of patient-centred care include gender, ethnicity, age, education, socio-economic status and health status (Roter & Hall, 2006). Women were likely to be given more information, be asked more questions including how they felt and tended to respond in a more emotionally expressive style (Roter & Hall, 2006).

Ethnic differences also influenced the patient-centredness of an interaction. Patients who reported their ethnicity as other than Caucasian, particularly males, exhibited fewer attempts to participate in decision-making (Street Jr, Gordon, Ward, Krupat, & Kravitz, 2005). Caucasian patients received more information, higher quality interpersonal connection, more skilled questioning and empathy from their practitioner (Roter & Hall, 2006).

Age is a predictor of patient preference and ability to engage in patient-centred encounters. It has been reported that older patients prefer on average a more paternalistic model of healthcare (Deber et al., 2007; Roter et al., 1997). However, authors have cautioned that this is most likely a cohort effect specific to the
generation, rather than an age-effect. Interestingly, Bastiaens et al. (2007) found that older adults wanted to be involved in healthcare, but placed greater emphasis on their relationship with their practitioner rather than active participation in decision-making. These authors also cautioned that the preferences for this age group were heterogeneous and elicitation of personal preferences for participation is required.

Education has also been positively linked to preferences for active participation in the patient-practitioner interaction. Patients with higher levels of education are more likely to be able to express their preference for involvement in decision-making to their practitioner and also tend to prefer a more patient-centred approach (Anderson & Zimmerman, 1993). Conversely, lower levels of education have been correlated with preferences for less active involvement in decision-making (Deber et al., 2007).

Socio-economic status has been found to influence preference for patient-centred interactions in health. Patients from high socio-economic backgrounds made more attempts at active participation (Willems, De Maesschalck, Deveugele, Derese, & De Maeseneer, 2005). Moreover, patients from a lower socio-economic background received less socio-emotional talk, less information and less partnership building attempts from their practitioners (Willems et al., 2005) and rated the patient-centredness of their care lower (Jayasinghe et al., 2008).

Patient health status has been reported to affect the nature of the patient-practitioner interaction (Bertakis et al., 1993). In a Dutch study, patients who reported a better health status were more likely to receive a patient-centred interaction (Bertakis & Azari, 2011). In addition, patients with a lower health status acted more negatively and passively towards their practitioners in healthcare interactions (Roter & Hall, 2006). This has been explained in part by the immediacy of a medical interaction when the condition is more acute (Bertakis & Azari, 2011).
In summary, a number of patient factors including gender, ethnicity, age, education, socio-economic status and health status have been found to influence patient preference for, and likelihood of participating in, patient-centred behaviours in health consultations.

### 2.4.4.2 Practitioner-related factors

Female or Caucasian practitioners with more years of experience have been found to be more patient-centred (Roter & Hall, 2006). Gender has also been found to influence communication and the patient-practitioner relationship. Female practitioners seeing female patients better judged their patients’ personalities, more equally dealt with power, more effectively used nonverbal cues and spent more time than with male patients; whereas male-male encounters yielded the least patient-centred interactions (Kaplan, Gandek, Greenfield, Rogers, & Ware, 1995). Concordance of ethnicity can influence the patient-centredness of an interaction. A match in ethnicity results in greater positive affect (Cooper et al., 2003) and a mismatch results in a less patient-centred interaction (Johnson, Roter, Powe, & Cooper, 2004). There is also emerging evidence that part-time practitioners are more patient-centred (Roter & Hall, 2006). However as it is more common for females to work part-time than males, this may be a gender effect.

Although practitioner age alone does not correlate with patient-centredness, studies have found that more experienced practitioners are better able to individualise and reflect on the nature of their relationship with patients (Anderson & Zimmerman, 1993). A greater number of experienced practitioners were in agreement with their patients’ perspective of health more often, suggesting they are better equipped to adapt to each patient individually than less experienced practitioners (Anderson & Zimmerman, 1993). Some practitioners seemed to adopt a patient-centred approach instinctively, while others learned through experience. Evidence suggests that it is possible to teach patient-centredness both during professional training and later in professional life (Stewart et al., 2003).
2.4.4.3 Organisational-related factors

The link between consultation time and quality of patient-practitioner interaction has been well researched. Stewart and colleagues (2003) succinctly summarised research in this area. A number of studies have shown that a patient-centred consultation takes no more time than a doctor- or disease-centred consultation (Stewart et al., 2003). Other studies reported that with a longer consultation, more counselling, discussion of patient needs and patient feedback could occur (Stewart et al., 2003). In a study with older primary care patients, Bastiaens and colleagues (2007) found that time could be both a barrier and facilitator to the patient-centredness of medical care. Older patients felt that having a rushed practitioner or too short an appointment was a barrier, whereas time was a facilitator if they felt that their practitioner had the time to listen. Medical practitioners also felt that older patients required more time than younger patients (Bastiaens et al., 2007). Interestingly, the amount of time spent in an encounter was not linked to patient satisfaction (Bastiaens et al., 2007). Others report that whether a practitioner took the time to assess the patient’s needs was the critical determinant of effective communication (Roter & Hall, 2004). In addition to time, patients reported that access to information (written, verbal and visual), as well as access to the health professional themselves, was crucial to their active participation (Bastiaens et al., 2007).

2.4.4.4 Research and implementation-related factors

For health professionals to implement patient-centred care, research that defines patient-centred care specific to their context considered essential (Hughes et al., 2008). Without a definition, clinical skills and behaviours are difficult to prioritise, teach, investigate and measure. Professions such as medicine, occupational therapy, and physiotherapy have conducted such research and it is argued that the optimal initial methodology for defining profession specific patient-centred care is iterative, commonly of a qualitative nature (Stewart, 2005; Stewart et al., 2003). For professions, such as audiological rehabilitation, the research is just beginning (e.g., see Laplante-Lévesque et al (2010b) and Poost-Foroosh et al (2011)).
2.4.5 What are the implications for rehabilitative audiology and this research agenda?

This literature review provides evidence that patient-centred care is in line with the aims and scope of practice for audiological rehabilitation. In clinical practice, there is a shift towards patient-centred ideals, as evidenced by a focus on the measurement of global rehabilitation outcomes such as satisfaction, quality of life and activity limitation and participation restriction in audiological rehabilitation (Cox, 2005). While some authors argue that audiological rehabilitation is inherently patient-centred (Gagné & Jennings, 2008), the extent to which patient-centredness occurs clinically is yet to be investigated. For example, anecdotal evidence suggests that it is not uncommon for the audiologist to set the agenda of each appointment, have strict time constraints, and play the dominant role in decision-making. Often such approaches are not under the control of the clinician, but regulated by organisational processes and requirements. It is argued, however, that audiologists require further training in communication and counselling in addition to what is taught in their standard education (Erler & Garstecki, 2002). Further, English (2005) describes the importance of examining the philosophical foundations to audiological rehabilitation’s clinical method, just as medicine has done where the result was a more patient-centred approach.

The research of Laplante-Lévesque et al (2010b; 2012) and Poost-Foroosh et al (2011) provides insight into what patient-centred rehabilitative audiology might look like. For example, it could include empowering and involving patients by using tools such as decision aids (Laplante-Lévesque et al, 2010b); widespread implementation of clinical processes that examine patient motivation and readiness (Greer Clark, Maatman, & Gailey, 2012); and/or increasing the value placed on interpersonal skills and caring for the patient as an individual.

2.4.6 Summary

The aim of this review was to identify gaps in the literature relating to factors influencing patient uptake and success with audiological rehabilitation. A gap
relating to patient-audiologist interactions was identified. Consequently, this review highlighted the relevance of patient-centred care to audiological rehabilitation. Patient-centred care describes quality care in which each patient is seen as an individual who experiences his/her health independently and has needs relating to being informed and involved in health decisions, particularly when the person has chronic conditions. There are many methods for measuring patient-centred care; however no gold standard currently exists. In general, outcomes associated with patient-centred approaches in healthcare are positive and include improvements in patient and practitioner satisfaction, patient adherence, and patient health status. How patient-centred care is enacted in practice varies and there are many patient- and practitioner-related factors that influence this, as well as organisational factors such as time. Patient-centred care has received much less attention in audiology than it has in other areas of healthcare and more research is required to optimise patient-centred care in audiological rehabilitation.

This literature review reveals a gap in the literature and therefore indicates two future directions for research. Firstly, a definition of patient-centred care specific to audiological rehabilitation is required. There are few studies that have explored the patient-audiologist relationship, and most notably, there is a lack of research on the insider perspective of audiological patient-centred care. To bridge this gap, qualitative studies that take the patient’s perspective into account are encouraged by eminent researchers (Knudsen et al., 2012). Secondly, with a definition developed, it will be possible to consider patient-centred audiological rehabilitation as a concept that is relevant, tangible and measurable. Through identification of what patients want from audiological rehabilitation, investigation into the nature and extent, barriers and facilitators of patient-centredness and the barriers and facilitators to patient-centred practice in audiological rehabilitation can occur. Research in these areas has the potential to inform clinical audiological rehabilitation practice and evaluation, education and continuing professional development of audiologists.
2.6 References


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CHAPTER 3

Rationale for methodological decisions

3.1 Introduction

The review of the literature in Chapter 2 identified a gap in knowledge relating to the role and value of the audiologist and patient-audiologist interactions in rehabilitation settings. Whilst there has been substantial research into patient-practitioner encounters, little is known about the nature of consultations between older adult patients and audiologists in rehabilitation and the perspectives of older adults about patient-centred care. The aims of this research were:

1) To explore the experiences of older adults who own hearing aids, relating to their interactions with audiologists.
2) To develop a definition of patient-centred audiological rehabilitation from the perspective of older adults who own hearing aids.
3) To determine the nature of patient-centred communication between audiologist and older adult patient/companion in initial audiology consultations.
   a) To observe the nature of patient-centred communication between audiologist and older adult patient/companion in the history-taking phase of initial audiology consultations.
   b) To observe the nature of patient-centred communication between audiologist and older adult patient/companion in the counselling phase of initial audiology consultations.
   c) To identify audiologist, patient or consultation-related factors that may influence patient-centred communication dynamics in initial audiology consultations.
The rationale for methodological decisions and an outline of these methods are addressed in this chapter. Specific procedural methodology for each study is contained within subsequent chapters: Study 1 in Chapter 4 and Study 2a and 2b in Chapters 5 and 6, respectively. This chapter firstly discusses the rationale for using a mixed-methods design, followed by the rationale for the choice of qualitative interviews, and the rationale for the choice of quantitative method for analysing audiology consultations. The chapter concludes with a summary of the attention given to rigour throughout this body of work.

### 3.2 Rationale for research design: mixed-methods

#### 3.2.1 Philosophical worldview

The body of research contained in this thesis was conducted from a pragmatic worldview perspective (Creswell & Plano Clark, 2007; Creswell, 2009; Johnson, Onwuegbuzie, & Turner, 2007; Onwuegbuzie, Johnson, & Collins, 2009). In this research program, the author espoused a problem-centred approach to asking real-world, practice-orientated research questions (Creswell, 2009). This worldview is in contrast to positivism (reductionist, verification of theory, focuses on cause and effect; typically addresses questions via empirical measurement) or constructivism (understanding sought, generates theory, focuses on individuals’ meaning; typically addresses questions via qualitative means). Pragmatists contend that the world has multiple layers of reality; some subjective, others objective and thus, a mix of qualitative and quantitative methods are required to integrate and enrich understanding of a topic (Feilzer, 2010). From this pragmatic worldview, it is argued that the research questions should drive methodological paradigm decisions (Tashakkori & Teddie, 2003). Given the aims of this research program, a mixed-methods design was indicated (Creswell & Plano Clark, 2007; Creswell, Klassen, Plano Clark, & Smith, 2011; Johnson & Onwuegbuzie, 2004; Onwuegbuzie et al., 2009).
3.2.2 Research design

A mixed-methods design (i.e., combining qualitative and quantitative methods) was employed for this research to examine the meaning and nature of patient-centred care in audiological rehabilitation for older adults. Mixed-methods research has become increasingly pertinent in healthcare to answer research questions which require contextualisation, multiple perspectives or more complete understanding of a problem (Creswell et al., 2011). For discussion examples see Glogowaska (2011), speech pathology; Hanson, Creswell, Clark, Petska and Creswell (2005), counselling psychology; Miller, Crabtree, Harrison and Fennell (2013), health service evaluation; and Morse (1991), nursing. An increase in popularity of mixed-methods research in health is said to be “because healthcare deals with people and people are on the whole more complex than the subject of the natural sciences, there is a whole set of questions about human interaction and how people interpret interaction which health professionals may need answers to” (Pope & Mays, 1995, p. 43). In addition, a mixed-methods approach to health research is said to be innately more patient-centred (Glogowska, 2011). An asset of this design is that it draws on the strengths of both approaches, thereby providing both depth and generalisability (Creswell & Plano Clark, 2007), while capturing the affective nature of personal experiences and interaction (Miller et al., 2013). A combination of qualitative and quantitative elements facilitates comparison and contrast of results from two perspectives and is commonly used to understand health and quality of life, health-related behaviours and their link to health outcomes and to evaluate interventions (Taket, 2010).

Mixed-methods research has been defined as a design or methodology which:

a) Focusses on research questions that call for real-life contextual understandings, multi-level perspectives and cultural influences,

b) Employs rigorous quantitative research assessing magnitude and frequency of constructs and rigorous qualitative research exploring the meaning and understanding of constructs,
c) Utilises multiple methods,

d) Intentionally integrates or combines these methods to draw on the strengths of each, and

e) Frames the investigation within philosophical and theoretical positions (Creswell et al., 2011, p. 4).

The purposes of mixed-methods designs were summarised by Tachakkori and Teddlie (2008), and are presented here in Table 3.1. The authors combined dimensions described by four different authors into seven purposes of mixed-methods research. This research program is consistent with developmental and expansion purposes. That is, the results of Study 1 were to inform the focus of Study 2 and, an integration of both results will lead to an expanded understanding on the phenomenon at hand.
Table 3.1 Common purposes for using mixed-methods research design (from Tashakkori and Teddlie, 2008)

<table>
<thead>
<tr>
<th>PURPOSE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complementarity</td>
<td>Mixed-methods are utilised in order to gain complementary views about the same phenomenon or relationship. Research questions for the two strands of the mixed study address related aspects of the same phenomenon.</td>
</tr>
<tr>
<td>Completeness</td>
<td>Mixed-method designs are utilised in order to make sure a complete picture of the phenomenon is obtained. The full picture is more meaningful than each of the components.</td>
</tr>
<tr>
<td>Developmental</td>
<td>Questions from one strand emerge from the inferences of a previous one (sequential), or one strand provides a hypothesis to be tested in the next one.</td>
</tr>
<tr>
<td>Expansion</td>
<td>Mixed-methods are used in order to expand or explain the understanding obtained in a previous strand of a study.</td>
</tr>
<tr>
<td>Corroboration/confirmation</td>
<td>Mixed-methods are used in order to assess the credibility of interests obtained from one approach (strand). There usually are exploratory AND explanatory/confirmatory questions.</td>
</tr>
<tr>
<td>Compensation</td>
<td>Mixed-methods enable the research to compensate for the weaknesses of one approach by utilising the other. For example, error in one type of data would be reduced by the other.</td>
</tr>
<tr>
<td>Diversity</td>
<td>Mixed-methods are used with the hope of obtaining divergent pictures of the same phenomenon. These divergent findings would ideally be compared and contrasted.</td>
</tr>
</tbody>
</table>
3.2.3 Strategy of inquiry

The strategy of inquiry refers to decisions relating to triangulation of methods: how data collection will be implemented and prioritised and how results will be integrated (Creswell, 2009; Hanson et al., 2005; Liamputtong, 2013). The implementation of data collection refers to the order in which qualitative and quantitative studies are conducted (sequentially or simultaneously), and priority refers to the relative weighting of each method. The nature of result integration refers to the way in which the findings of each method are corroborated or connected. These decisions are made based on the research aims (Creswell, 2009; Hanson et al., 2005). Given that this research had a developmental and expansion purpose (also termed exploratory), sequential implementation of data collection wasfavoured; specifically, a qualitative study followed by a quantitative research study, and equal priority was given to each method (Morse, 1991).

Sequential exploratory research, where the qualitative data provides a rationale for the quantitative design, is appropriate when the research aim is inherently inductive (Hanson et al., 2005). An inductive study utilises qualitative methods to explore and develop theory; the qualitative results then inform the quantitative phase of the research (Morse, 1991). This strategy is particularly powerful in exploring emerging theories and relationships or expanding qualitative findings to a new population (Hanson et al., 2005). A sequential mixed-methods strategy of inquiry was thus chosen to ensure that the interaction analysis of audiology consultations conducted in Study 2 was informed inductively, by the results of Study 1. The sequential nature of studies conducted in this thesis is depicted in Figure 3.1.
As a consequence of conducting two separate but sequentially interrelated studies, the nature of result integration required consideration. In sequential exploratory research, typically, data integration occurs after separate analyses of each method (Morse, 1991). In this research, the integration of results was based on answering the following question: do older adults receive patient-centred audiological rehabilitation according to a definition developed from older adults with hearing aids? To answer this question, an interpretive synthesis was conducted (Liamputtong, 2013). That is, an answer to the aforementioned question was grounded in objective data collected in Study 2, juxtaposed with a model developed in Study 1. This relationship is depicted in Figure 3.2.

Figure 3.1 The sequential nature of Study 1 and Study 2 contained in this thesis

Sequential mixed-methods design

Study 1

Informed

Focussed

Study 2
3.3 Rationale for qualitative methodological decisions: Study 1

Sequential, exploratory mixed-methods research commences with a qualitative study to gain the insider perspective on complex experiences of a phenomenon (Chwalisz, Shah, & Hand, 2008; Creswell, 2007; DiCicco-Bloom & Crabtree, 2006). According to Morse (1991), research questions appropriate for qualitative investigation have the following characteristics:

a) The problem is immature due to lack of theory or previous research;
b) The available theory may be incorrect or inapplicable;
c) There is a need to further explore and describe a phenomenon and develop a theory.
The first two research questions of this thesis are in line with characteristic a) and c). In audiology research, questions appropriately investigated via qualitative means are becoming more common (Knudsen et al., 2012). These studies have provided valuable insight into the human dynamics of hearing impairment and audiological rehabilitation, where quantitative methods previously provided limited insight (for examples see: Carson (2005); Hétu (1996); Laplante-Lévesque, Jensen, Dawes, & Nielsen (2013); Laplante-Lévesque, Hickson, & Worrall (2010); Laplante-Lévesque et al., (2012); Scarinci, Worrall, & Hickson (2008); Southall, Gagné, & Jennings (2010)).

3.3.1 Research strategy
The specific strategy chosen for Study 1 draws on traditions of phenomenology, grounded theory and qualitative descriptive research strategy (Sandelowski, 2000). Each of these terms (phenomenology, grounded theory and qualitative descriptive) is now described. Phenomenology aims to describe the meaning of several people’s experiences of a phenomenon; that is, exploration of a shared experience results in a description of the essence of that experience (Creswell, 2007). Grounded theory, on the other hand, goes beyond description towards theory or framework development via analytical interpretation of data (Creswell, 2007). In this thesis, the questions asked were specific to an experience or phenomenon, as in phenomenology. However, the relationships and connections between concepts were identified, as occurs in grounded theory. Qualitative descriptive strategy is often used to describe qualitative research of this nature. A qualitative descriptive strategy is suitable for exploratory research and produces a comprehensive summary of a phenomenon from the participant’s perspective (Sandelowski, 2000). This strategy is typically relevant when a topic is of interest to practitioners or policy-makers (Sandelowski, 2000). The participants of interest in this study were older adults who owned hearing aids and the phenomenon of interest was their experience interacting with audiologists.

Qualitative descriptive studies have a typical design for data collection and analysis. Participants are recruited via purposive, maximum variation sampling
and data is collected via in-depth interviewing (Sandelowski, 2000). Data analysis typically follows an analytical method such as qualitative content analysis (Graneheim & Lundman, 2003; Sullivan-Bolyai, Bova, & Harper, 2005).

3.3.2 Data collection: Semi-structured interviews

The data collection method for Study 1 was in-depth individual interviews with older adults who owned hearing aids for at least one year. This group of participants were chosen as they had all had multiple experiences with an audiologist (and in some cases experiences with multiple audiologists). Therefore, these participants were able to reflect on good and poor interactions, reflect on processes and behaviours within consultations and describe their preferences.

Each participant was interviewed at a venue of his or her convenience. Interviews are commonly used throughout health disciplines to collect qualitative data (DiCicco-Bloom & Crabtree, 2006; Starks & BrownTrinidad, 2007). The purpose of using this technique is to gather detailed, person-centred information (Gubrium & Sankar, 1994). Specifically, individual, in-depth interviews occur in an unstructured or semi-structured fashion to explore participants’ experiences and perspectives (DiCicco-Bloom & Crabtree, 2006). While unstructured interviews tend to be conducted in conjunction with other data collection techniques (such as observation), semi-structured interviews can constitute the entire data set for a study (DiCicco-Bloom & Crabtree, 2006). The essential aim of interviewing is to obtain an insider’s perspective (i.e., their thoughts and perceptions in their own words) of a particular event or occurrence (Creswell & Plano Clark, 2007; Creswell, 2007; Liamputtong, 2013).

In semi-structured interviewing, questions are centred on a well-defined research question (Liamputtong, 2013). This frequently becomes the opening question of the interview followed by 5-10 probing questions the aim of which is to delve deeper into the topic. To maximise the effectiveness of in-depth interviews, interviewers must use open-ended questions, listen actively, value silence, self-monitor language complexity and assume no prior knowledge (Serry &
Thus, the role of the research interviewer is more complex than just formulating questions and developing rapport.

### 3.3.3 Data analysis

Interviews from Study 1 were audio-recorded and transcribed verbatim. This interview data were analysed using content analysis. In qualitative content analysis, an inductive approach is used to build codes into categories and themes based on the words of participants (Graneheim & Lundman, 2003; Knudsen et al., 2012). When conducting content analysis, the researcher firstly identifies units of analysis (i.e., text in the transcripts which is relevant to the research question); these units are grouped into meaning units (i.e., text which contain aspects related to each other through content (Graneheim & Lundman, 2003)). Meaning units are condensed or shortened, then grouped into codes based on content relationships. The title of each code uses participants’ own words. Codes are then grouped into categories which share broad content. These categories describe the manifest content of the data (Graneheim & Lundman, 2003), or what participants said. From the categories, further analysis of the latent content, that is how the participant’s description fits together and what the data means takes place. This is often reflected thematically (Graneheim & Lundman, 2003).

The outcome of using qualitative interviewing in conjunction with content analysis was a patient-driven definition of patient-centred care in audiological rehabilitation. This definition provided an in-depth view of the preferences of older adults who own hearing aids and how their preferences for patient-centred audiological rehabilitation might be operationalised. The processes of analysis through coding and abstraction are further described in Study 1, Chapter 4.

### 3.4 Rationale for quantitative methodological decisions: Study 2

The results of Study 1 were used to inductively conceive the focus and method of Study 2a and 2b. The definition of patient-centred audiological rehabilitation
according to older adults who owned hearing aids contained dimensions that were largely observable through audiologist-older adult communication and typically occurred in initial audiology consultations. Thus, a method that a) examines communication and b) provides an objective analysis of patient-practitioner consultations was sought. This section describes the rationale for utilisation of choosing the Roter Interaction Analysis System (RIAS) and outlines elements of this system.

3.4.1 Rationale for use of an observation-based interaction analysis system
The most common method for studying patient-practitioner interactions is examination of interactional behaviours, commonly verbal communication, which occurs therein (Street & Millay, 2001). By exploring actual behaviours, the subjectivity or biases often captured by self-report measures alone are overcome (McCormack et al., 2011). An observation-based examination of patient-audiologist interactions method was chosen.

3.4.2 Rationale for quantitative analysis of interaction
There are numerous techniques for systematically examining the nature of patient-practitioner interactions in health consultations. For example, qualitative approaches such as narrative or other socio-linguistic methods provide depth and insight into the complexities of interactions (Bell, Kravitz, Thom, Krupat, & Azari, 2002; Sanchez-Algarra & Anguera, 2013), whereas quantitative approaches typically identify predetermined behaviours and content, thereby facilitating comparison and identification of mediating factors (Roter & Hall, 1989). Both qualitative and quantitative methods have strengths and weaknesses in interaction analysis research. In the context of this research, where little was known about audiologist-older adult interactions, a quantitative approach was chosen to maximise identification of specific behaviours, to allow comparisons to other areas of healthcare and to provide data in a format that would motivate future investigation.
3.4.3  Rationale for choice of quantitative observation-based system

Over the last 30 years, many observation-based interaction analysis systems have been developed for research and training purposes. The recent proliferation of interaction analysis systems in the absence of a unified concept of ‘quality’ resulted in systems that have poor reliability or validity, lack theoretical backing and have been used in few published studies (Boon & Stewart, 1998; McCormack et al., 2011; Mead & Bower, 2000; Schirmer et al., 2005). Researchers therefore recommend that preference be given to analysis systems that are validated and frequently published (Epstein et al., 2005; McCormack et al., 2011; Ong et al., 1998). Over the last two decades, a number of high quality review articles have compared and contrasted available observation-based quantitative interaction analysis systems (Boon & Stewart, 1998; Epstein et al., 2005; Mead & Bower, 2000). These reviews have examined instruments which utilise a range of techniques such as checklists, coding systems or rating scales applied to recorded or live clinical encounters (Epstein et al., 2005). Coding systems may either break down behaviours within the consultation into units (e.g., utterances, time) (Callahan & Bertakis, 1991; Roter & Larson, 2002). Checklists or rating scales, in contrast, provide an overview of the types of behaviour within a consultation relative to the specific theoretical framework (Brown, Stewart, & Ryan, 2001; Mead & Bower, 2000).

Boon and Stewart (1998) conducted a review of instruments used to assess doctor-patient communication from 1986 to 1996. These authors identified 44 different instruments, 16 of which were for educational purposes and 28 were used in communication-based research (i.e., associations between specific behaviours and outcomes or nature of communication). This review distinguished four research instruments that had been used in multiple studies by many investigators, external to the authors (i.e., the Bales’ Process Analysis System (Bales, 1950), the Verbal Response Mode (VRM) (Stiles, 1992), the Roter Interaction Analysis System (RIAS) (Roter et al., 1997) and the Patient-Centred Measure (Stewart, 1995). When discussing their findings, Boon and Stewart pointed out advantages and disadvantages to different instruments and
recommended consideration of the following five points when choosing an interaction analysis instrument for future research:

a) Instruments that audio- or video-record consultations are advantageous compared to real-time assessment in that they facilitate detailed analysis and re-analysis for inter and intra rater reliability.

b) Instruments that rely on a ‘behaviour present or absent’ system are less subjective than systems where the observer indicates degree of skill on a Likert scale.

c) Quantitative interaction analysis systems risk placing less emphasis on socioemotional behaviour than task-focused behaviour, thus information on interactional context and sequence may not be incorporated.

d) Consider instruments that have been widely used, validated and shown to be reliable.

e) Consider instruments that show correlations to other interaction analysis systems.

Ong et al (1998) described similar criteria for selecting an interaction analysis system for patient-practitioner communication. Firstly, they recommend that the system capture both care and cure talk; that is, task-focused and socio-emotional talk; secondly, the system should utilise audio- or video-recordings. The third criterion was that coding of communication should be efficient and lastly, the system must have been tested for reliability or validity.

These checklists formed the basis for choosing an interaction analysis system in this thesis: that is, a system that was based on recorded consultations, was objective and included socio-emotional aspects of interaction in addition to being widely used, was validated and reliable and shown to have correlations to other interaction analysis systems (i.e., is examining appropriate content) was sought. In addition, other review articles advocate the importance of using interaction analysis systems which are theoretically sound (McCormack et al., 2011; Ong et al., 1998). The final requirements were specific to this thesis. The authors required
that the system be appropriate for use in an audiology context and flexible enough to include interactions where more than two people were present (e.g., consultations where a companion attended).

Few interaction analysis systems met the criteria outlined above. While not overtly recommending the RIAS, multiple review articles have reported the benefits of this system over alternative systems (Boon & Stewart, 1998; Inui, Carter, Kukull, & Haigh, 1982; Mead & Bower, 2000). For example, in Boon and Stewart’s review of instruments, the four instruments which were most commonly used and met the largest number of criteria, were the Bales’ Process Analysis System (Bales, 1950), the Verbal Response Mode (Stiles, 1992), the Patient-Centred Measure (Stewart, 1995) and the RIAS (Roter et al., 1997). In a separate review article, Mead and Bower (2000) conducted a comparison of three observation-based interaction analysis systems for the purpose of examining their validity and reliability in measuring patient-centredness in a sample of 55 general practice consultations. The three instruments compared were the RIAS (Roter & Larson, 2002), Euro-communication scale (not previously published) and the Patient-Centred Measure (Henbest & Stewart, 1990). These authors found that both the RIAS and Patient-Centred Measure showed good reliability. Additionally, while these two measures showed poor concurrent construct validity, the RIAS was found to appropriately measure psychosocial exchange within a consultation.

After further investigation of studies using common interaction analysis systems, the RIAS was found to be the most appropriate choice and best fit for the criteria and for this investigation of verbal communication between audiologist, older adults and companions in initial audiology consultations. The RIAS was thus chosen for use in Study 2a and 2b.

3.4.4 The Roter Interaction Analysis System (RIAS)

The RIAS has emerged as one of the most commonly used interaction analysis systems (Roter & Larson, 2002) with over 200 patient-practitioner peer-reviewed published articles. RIAS was found to be reliable in many contexts such as: primary
care, surgery, nursing, obstetrics and gynaecology, podiatry and dentistry (see RIASworks.org for a full list) (Cavaco & Roter 2010; Vegni et al. 2010). It has also been used across a number of countries. For example, studies were conducted in the United States (Beach et al., 2010; Bensing, Roter, & Hulsman, 2005; Bertakis, Roter, & Putnam, 1991; Cooper et al., 2003; Ellington, Kimberly, Reblin, Latimer, & Roter, 2011), across Europe (Kruijver, 2001; Mead & Bower, 2002; Pawlikowska, Zhang, Griffiths, van Dalen, & van der Vleuten, 2012; Sondell, Soderfeldt, & Palmqvist, 2003) and throughout Asia (Ishikawa, Roter, Yamazaki, & Takayama, 2005; Kim & Park, 2008). However, to date, this system has not been used in an audiology context nor has it been used in published research within Australia.

The RIAS is underpinned by social-exchange theory whereby the interactions between patient and practitioner are shaped through dialogue (Roter & Larson 2002). Dialogue can be broadly grouped as either socioemotional or task-focussed and the nature of this communication is compared to the spectrum of patient-practitioner interactions (paternalistic to consumerist). Broadly, the RIAS is derived from the Bales Interaction Analysis System (Bales, 1950), however, the authors of RIAS explain that in its current state the RIAS differs from the Bales system in three major ways (Roter & Hall, 1989):

a) Coding occurs directly from audio or video,

b) Tonal and affective qualities of utterances are documented, and

c) Categories are tailored to reflect the content and context of the healthcare appointment.

3.4.4.1 Validity and reliability

In addition to being used extensively in healthcare research, the RIAS system is evidenced to have good coding reliability and some correlations have been reported with other interaction analysis systems (McCormack et al., 2011). Authors report average inter-rater reliability measured by Pearson’s correlation of 0.85 or either Spearman Rank or Intra-class Correlation Coefficients ranging from 0.6 to 1.0 for patient and practitioner communication categories (Bertakis et al.,
1991; Boon & Stewart, 1998; Cavaco & Roter, 2010; Kruijver et al., 2001; Mead & Bower, 2000; Ong et al., 1998; Roter & Larson, 2002; Roter et al., 1997; Weingarten et al., 2010). These figures are consistent across individual codes and categories; however, many authors exclude inter-rater codes that are underutilised (Ford, Fallowfield, & Lewis, 1996; Ong et al., 1998; Roter, Lipkin Jr, & Korsgaard, 1991). Interestingly, intra rater reliability is rarely published.

3.4.4.2 Procedure
At a practical level, the RIAS requires trained coders to observe and/or listen to consultations while categorising the content and form of each utterance from each speaker. RIASworks.com, the organisation through which RIAS is distributed, provides training to coders. Training occurs over a weeklong course followed by up to 60 hours of coding practice. The RIAS developers state that an experienced coder can code an interaction in approximately two to three times the length of the interaction; some authors report that this number is underestimated (Ong et al., 1998).

The RIAS analysis is conducted based on an audio- or video-recording of a consultation. When using the RIAS, coders assign a unique code to each patient, companion or practitioner utterance within a consultation. A list of 41 codes is available to the coder: 40 can be used for practitioner utterances, and 36 can be used for the patient. In this system, utterances are defined as the smallest discriminable speech segment to which a single meaning can be attributed. The actual length of an utterance may vary; however, it must only convey one thought or aim (i.e., compound sentences are split at their juncture and pauses in speech for more than one second are separated as different utterances). For analysis, codes are then grouped into four categories per speaker. For example, the practitioner categories are: education and counselling, data gathering, relationship building and patient activation and facilitation; patient categories are: information giving, question asking, relationship building, activation and engagement. Ultimately, the categories represent communication profiles for each speaker and
can be quantified and analysed in terms of content, form, and the extent of patient-centredness.

3.4.4.3 Adaptability of the RIAS
A major benefit of the RIAS is its adaptability to many research contexts. The RIAS has been used in studies evaluating quality of service delivery and associations between patient, practitioner and organisational level factors. Specific outcomes such as physician and patient satisfaction, malpractice claims, patient recall, emotional impact as well as efficacy of educational programs have been examined using this system (Mead & Bower, 2000; Roter et al., 1997). For example, utterances from more than two speakers, such as practitioner, patient and spouse/family member (termed companion in this thesis) or two practitioners and one patient, can be coded. Additionally, coders may include targeted competencies to capture specific skills required in a given context. In the case of audiological rehabilitation, this feature allowed the coders to document the occurrence of key interview processes such as history taking, otoscopy, examination, explanation of results, goal setting and decision-making. There is potential for coders to add additional notes as they are coding for depth of understanding or for further discussion amongst the research team.

Adaptation of the RIAS manual was required for use in the audiology context. The adaptation process was conducted by extensive discussion between the author and a group of experienced audiology researchers alongside contact with the authors of the RIAS system. An outline of the main adaptations is listed below and the adapted manual can be found in Appendix C:

a) All references to ‘doctor’ replaced with ‘audiologist’,
b) The definition of ‘medical condition’ was expanded to include hearing loss,
c) References to the biomedical condition of hearing loss were considered ‘medical’ utterances; references to the functional symptoms of hearing loss were considered ‘lifestyle’ or ‘psychosocial’, depending on the tone used in the utterance;
d) The definition of ‘therapeutic regimen’ was re-written to include hearing aids specifically,

e) Examples of audiology-specific utterances were written for each code to ensure shared understanding between coders, and

f) Definitions were checked and minor alterations made in early stages of coding.

3.4.4.4 Limitations

Although the RIAS is a valid, theory-driven and widely used interaction analysis system, it has also attracted some criticism. Criticism of the RIAS has come from the perspective of linguistic conversational analysis (Sandvik et al., 2002). Suggestions of improvements in the definition of sequences including turn-taking and back-channelling, coding of emotional speak or crying. The creators of RIAS have rebutted each of these suggestions and believe that the conversational analysis perspective does not provide significant functional or conceptual advances worthy of altering the system (Roter, 2000). Rather, such detailed analysis might be considered in addition to using the RIAS. While the authors acknowledge the limitations of the RIAS, the system does provide quantification of communication such that data can then be analysed with reference to theoretical frameworks of health communication (e.g., the functional model of medical interviewing by Cohen-Cole, 1991), or context specific analysis (e.g., specific interpretation of the RIAS for prosthodontics settings by Sondell et al, 2002)) and thus represents a sound and strong choice for conducting interaction analysis in Study 2a and 2b of this thesis. Limitations that became apparent through use of the system are discussed in Chapter 7.

3.5 Rigour of research design and inquiry

Throughout this body of work, attention was given to maximising rigour. Rigour was evidenced in study design, data collection and analysis and result integration and conceptualisation.
3.5.1 Design
The use of a mixed-methods design was founded in a pragmatic worldview perspective where real-world problems can be addressed from both subjective and objective perspectives and thus, a sequential mixed-methods strategy was employed. The results of Study 1 informed the focus and procedure of Study 2.

3.5.2 Data collection and analysis (for both studies)
In qualitative research, trustworthiness is considered the tool through which validity or rigour is displayed (Sandelowski, 1993). Trustworthiness is dependent on how the researcher made their research practices “visible and auditable” (Sandelowski, 1993, p. 2). Trustworthiness in Study 1 was ensured through rigorous analytical process where data abstraction occurred in close proximity to the transcripts. In addition, the co-investigators undertook regular auditing to ensure the condensation of codes to categories in the content analysis was representative of participants’ words.

A fundamental challenge to the rigour of qualitative interviewing is the influence of an interviewer’s objectivity or biases. In Study 1 of this thesis, the interviewer was also an audiologist. Therefore, the potential for researcher bias was an important area to be considered and actively addressed. To ensure objectivity, the researcher did not disclose to the interviewee that she was an audiologist, unless specifically asked; the interviewer overtly expressed interest in the interviewee’s own expert opinions and experiences; and the analytical process was conducted with close proximity to the interviewee’s words. Ethical issues in in-depth interviewing were also considered (DiCicco-Bloom & Crabtree, 2006). Written consent was obtained and then checked at the conclusion of the interview. The recordings were identified by research participant numbers and transcription were anonymous both in raw form and in written analysis and the data were stored in a private and protected place.

In Study 2, as discussed in section 3.4, decisions to use the RIAS were founded in evidence and based on the research aims of the study.
One of the main threats to the rigour of mixed-methods research is integration of results (Onwuegbuzie & Johnson, 2006). While there is no single agreed upon strategy for integration of results, Onwuegbuzie and Johnson (2006) recommend ensuring that the method of integration be congruent with at least one of the purposes of mixed-methods research. Given that this research had both developmental and explanatory purposes, the appropriate method of integration was interpretive synthesis. In this research program, the results of Study 1 which explored older adult’s experiences and perceptions of patient-centred audiological rehabilitation, informed and provided the rationale for the focus and method of Study 2a and 2b that investigated the nature of audiologist-older adult communication in initial audiology consultations.

3.5.3 Conceptualisation of findings

Aside from the written and empirical integration of results, conceptualisation of findings was documented by the author in a research journal and through artistic interpretation. Despite the expanse of data provided by the RIAS analysis, the author observed specific instances in audiology consultations which were representative of pertinent findings from Study 1 and Study 2. Throughout this thesis the reader will observe a number of sketches illustrating moments in time between older adults, companions and audiologists. The drawings displayed in this thesis were chosen from many drawings made by the author.

3.6 Summary

This chapter has provided an overview of the rationale for methodological decisions throughout this thesis. Each methodological decision was based on rationales relating to maximising rigor and conceptual strength. The sequential, mixed-methods approach taken specifically addressed the aims of the research. By conducting a qualitative study followed by a quantitative study, triangulation and integration of results was based on the insider perspective of older adults who have experienced audiological rehabilitation. Triangulation of results is further discussed in Chapter 7 of this thesis. Prior to that, additional details on the
research procedure, analysis and the results of Study 1 are found in Chapter 4 and Study 2a and 2b are found in Chapters 5 and 6, respectively.
3.7 References


CHAPTER 4

Patient-centred audiological rehabilitation: Perspectives of older adults who own hearing aids


4.1 Abstract

4.1.1 Objective

Patient-centred care is a term frequently associated with quality healthcare. Despite extensive literature from a range of healthcare professions that provide description and measurement of patient-centred care, a definition of patient-centredness in audiological rehabilitation is lacking. The current study aimed to define patient-centred care specific to audiological rehabilitation from the perspective of older adults who have owned hearing aids for at least one year.

4.1.2 Design

Research interviews were conducted with a purposive sample of older adults concerning their perceptions of patient-centredness in audiological rehabilitation and qualitative content analysis was undertaken.
4.1.3 Study Sample

The participant sample included ten adults over the age of 60 years who had owned hearing aids for at least one year.

4.1.4 Results

Data analysis revealed three dimensions to patient-centred audiological rehabilitation: the therapeutic relationship, the players (audiologist and patient) and clinical processes. Individualising care was seen as an overarching theme linking each of these dimensions.

4.1.5 Conclusions

This study reported two models: the first model describes what older adults with hearing aids believe constitutes patient-centred audiological rehabilitation. The second provides a guide to operationalising patient-centred care. Further research is required to address questions pertaining to the presence, nature and impact of patient-centred audiological rehabilitation.
4.2 Introduction

Patient-centred care has become a well-established feature of the delivery of health and rehabilitation services (Mead & Bower, 2000). References to the term are frequent in the literature spanning numerous health professions. In particular, patient-centred care is central to the management of chronic health conditions (Michie et al., 2003) and the healthcare of older adults (Bastiaens et al., 2007). In addition, a patient-centred approach is said to be appropriate in audiological rehabilitation (English, 2005; Gagné & Jennings, 2011; Laplante-Lévesque et al., 2012). However, little is known about patient-centred care specific to patients experiencing audiological rehabilitation.

As discussed in the article by Grenness, Hickson, Laplante-Lévesque and Davidson (Chapter 2; section 2.4), and summarised in Table 2.1 of that chapter, several health professions including medicine, occupational therapy and physiotherapy have proposed models for the clinical application of patient-centred care (Law et al., 1995; Mead & Bower, 2002; Cott, 2004; Cooper et al., 2008; Kidd et al., 2011). Existing models of patient-centred care each contain profession-specific details that limit their applicability to other areas of health. For example, Law et al (1995) described ‘enablement’ (i.e., facilitation of a patient’s ability to achieve his or her own goals) as a dimension in their model for occupational therapy, encapsulating the role of this profession in reinstating functional wellness in day-to-day life. In contrast, the equivalent dimension reported by Mead and Bower (2000) outlines the ‘biopsychosocial perspective’, which describes a doctor’s role in understanding illness in a broad perspective but does not include the concept of enablement. It is therefore unclear which aspects of these models are applicable to audiological rehabilitation. In addition, Hughes, Bamford and May (2008) reviewed the patient-centred care literature across health professions and recommended that health professions should
individually define and model patient-centred care due to differing priorities, facilities, tasks and needs of their patients.

In audiological rehabilitation, a model of patient-centred care is yet to be developed. Grenness, Hickson, Laplante-Lévesque and Davidson (2014a; contained in this thesis as Chapter 2, sections 2.3 and 2.4) summarise recent findings in the audiology field that are relevant to patient-centred care. They concluded that, while there is evidence to suggest that rehabilitative audiology patients value the interaction with their audiologists, there is a need for further research into the nature and presence of patient-centred care in audiological rehabilitation. The aim of this study was to define patient-centred audiological rehabilitation from the perspective of older adults who had experience of audiological rehabilitation. Previous research in this field by Laplante-Lévesque et al (2010) and Poost-Foroosh et al (2011) focussed on patient perceptions of decision-making in rehabilitation and factors in the patient-audiologist interaction that influence hearing aid adoption, respectively. The current study adds to this body of literature in that it makes no assumption that a specific process or audiologist behaviour is valued by patients. This study focussed on patients’ experiences and preferences for patient-centred audiological rehabilitation in clinical settings where hearing aid fitting and management was the major activity. Many participants in this study had visited more than one audiologist and/or clinic, affording them insight into their own preferences and values.

4.3 Method

4.3.1 Study design

This descriptive qualitative study was conducted in 2011-2012 in Victoria, Australia and was conducted under the ethical approval of the Royal Victorian Eye and Ear Hospital Human Research Ethics Committee.
4.3.2 Recruitment and sampling

Participants were recruited from audiology clinics, general practice medical clinics and hearing advocacy groups. Eligibility was restricted to adults (aged 60+) who had owned hearing aids for at least 1 year; participants did not need to be current hearing aid users. Older adults were the focus of this study as it is the age group amongst which hearing impairment is most common. It was decided to include only participants who own hearing aids, as they were likely to have had more than one interaction with an audiologist and/or audiology clinic.

Beyond these restrictions of age and hearing aid experience, purposive sampling was used when recruiting participants. Maximum variation was sought in terms of age, gender, eligibility for Australian Federal Government subsidy of hearing services and self-reported ethnicity (according the Australian Bureau of Statistics (2011) (see Table 4.1). Participants who are eligible for the Australian Federal Government scheme receive complete subsidy of bilateral digital hearing aids in behind-the-ear or in-the-ear/canal styles with directional microphones, whereas participants not eligible have access to any technology limited only by their financial contribution. Mid-to-high level technology is also accessible to the latter group of patients if they financially contribute to the cost of the aids. Other audiological services such as hearing assessment and hearing aid maintenance are also available for free to those eligible. Table 4.1 summarises the characteristics of the ten participants. Participants had owned hearing aids for an average of 7.9 years (range 1-25) and, on average, had seen more than two audiologists in that time (range 1-5).
Table 4.1 Summary of participant characteristics (N=10)

<table>
<thead>
<tr>
<th>CHARACTERISTIC</th>
<th>N (PARTICIPANTS)</th>
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</thead>
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<td><strong>Age (years)</strong></td>
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<tr>
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<tr>
<td>Male</td>
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<tr>
<td><strong>Eligibility for Australian Federal Government subsidy for hearing services (aged or disability pensioner, veteran or Indigenous Australian)</strong></td>
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</tr>
<tr>
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<tr>
<td><strong>Self-reported ethnicity</strong></td>
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<tr>
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<td>Range</td>
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4.3.4 Procedures

The first author (CG) conducted a semi-structured qualitative interview with each participant at a place of their preference: either at their home (n = 5) or at the University of Melbourne (n = 5). Each interview followed a topic guide, which focused on the participant’s experience with audiological rehabilitation and their thoughts, feelings and preferences about the nature of patient-centred audiological rehabilitation (e.g., “Tell me about your experiences with your hearing care”; “What does patient-centred hearing care mean to you?”). This topic guide can be found in Appendix B of this thesis. Individual in-depth interviews were chosen to provide rich and personal data on the ‘insider perspective’ (DiCicco-Bloom & Crabtree, 2006). Interviews lasted between 40 and 60 minutes. Interviews were audio-recorded using an Apple iPhone 4, downloaded onto a personal computer and transcribed verbatim. The software NVivo 9 (QSR International) was used to sort and display the data.

4.3.5 Analysis

The content analysis method of qualitative data analysis was employed. Qualitative content analysis, as described in Knudsen et al (2012) and Graneheim and Lundman (2003), requires that content analysed within the interviews is defined by the research aim. The first step of analysis was to identify and label meaning units, that is, excerpts from interview transcripts relevant to the research aims. From each meaning unit, a number of codes were assigned, depending on the content. Code names closely represented the meaning unit, text and codes were subsequently grouped, according to shared meaning into sub categories. Data was then further organised into categories that were representative of the original data. The ten interviews generated 975 meaning units and 237 codes. Through complex abstraction, the grouping of codes led to three categories. In addition to the descriptions of data provided by the categories, the authors conducted a thematic interpretation of the relationship
between the data. The researchers identified one overarching theme that was common to all categories.

To ensure rigorous data analysis, the first author (CG) checked the analysis against the original interview transcripts at multiple stages of analysis. The three other authors (LH, AL-L and BD) reviewed the analytic process of condensation and abstraction and reviewed the thematic exploration of the data.

4.4 Results

Three categories were identified from participant interviews as being key to patient-centred care in audiological rehabilitation: the therapeutic relationship, the players, and clinical processes. Individualised care was the theme that emerged through each of the three categories. The results are presented in a model of patient-centred audiological rehabilitation shown in Figure 4.1. The results, including the three major categories, their subcategories and overarching theme are described with interview excerpts below.
INDIVIDUALISED CARE

CLINICAL PROCESSES

PLAYERS

THERAPEUTIC RELATIONSHIP

Figure 4.1 Model of patient-centred audiological rehabilitation from the perspective of adult patients who own hearing aids
4.4.1 Theme: Individualised care

The overarching theme that was observed throughout all three categories was individualised care. This theme set the tone of each category and emerged as the essential ingredient in ensuring that audiological rehabilitation was patient-centred for any given patient. Participants described themselves as individuals and expected the audiologist to be flexible and to adapt to each patient’s own needs. How patients expected this to unfold is described in each of the three categories. The following quote summarises the expectation that patient-centred audiological rehabilitation would be based on the needs of an individual:

It's the level of interest in the person; I am not just some punter that's come through the door. I am a person who has needs, and the (audiologist) is trying to determine as best he or she can, what those needs are, and trying to find a solution for whatever my problem might be. (Participant #7; male, age 70)

4.4.2 Category 1: Therapeutic relationship

Participants described how they value and expect to develop a relationship with their audiologist. Within this category, participants described how a relationship is the central and most basic need in a healthcare interaction. This expectation was described as the heart of patient-centred care; for example, without this relationship all other processes and tasks would likely be inefficient or fail. For this reason the category, therapeutic relationship, is observed in Figure 4.1 as the central component of patient-centred audiological rehabilitation from which the remaining categories and theme stem. Participants’ expectations were described in the following terms:

I don't expect to have an intimate relationship with these people, but there's a certain feeling that flows between two people when one of them is the carer, and the other one is being cared for. It doesn't have to be intimate, but you've got to be more than just a number, or the next patient. (Participant #1; female, age 69)
You’ve got to have the same relationship as you have with your doctor in a way because it is an on-going (process). (Participant #2; female, age 68)

There were two subcategories of the therapeutic relationship: trust and loyalty.

4.4.2.1 Trust

Participants believed that commercial-based considerations common in audiological rehabilitation involving hearing aids could intrude on the formation of a therapeutic relationship. Development of trust in such circumstances was seen as a complex phenomenon that might change over time. Trust development was seen as the audiologist’s responsibility: the audiologist should adopt an approach where the comfort of the patient was assured, particularly when it came to financial decisions and problem-solving with hearing aids. Participants who recounted their experience of successfully developing trust reported a positive therapeutic relationship and described long-term loyalty to their audiologist and audiology clinic.

It's the whole approach (that makes me trust the audiologist), that you feel comfortable. It doesn’t matter who you’re seeing, you have to feel comfortable with them. (Participant #3; female, age 71)

It's not so much the hearing aid… or whatever is going into your ear canal; there’s been always a willingness to try something else (from the audiologist). If that doesn’t work okay, well let’s try something else. That gives you a great deal more confidence, and you trust the people that you're working with, to try and find a suitable outcome. (Participant #10; male, age 77)

In contrast, a common experience felt deeply by some participants was that audiologists were inherently untrustworthy due to the commercial arrangement they were often engaged in. Participants reported being hesitant before visiting the audiologist; others saw an audiologist and left with their concerns affirmed, or with such an opinion formed:
Most audiologists are too interested in selling you hearing aids. They don’t really have that much care. As soon as you go in there of course they’ll test your ears and test what level of hearing you’ve lost, and then it’s straight away hearing aids. (Participant #10; male, age 77)

One participant described how the creation of distrust in an audiologist-patient interaction led to her decision to put off seeing the audiologist again:

He didn't talk about cost; he just said “For you, this would probably be the best sort”. It was very “okay, let’s get on and get you a hearing aid, and get you out the door”. Maybe I just didn’t feel comfortable with him as a person, but the approach made me feel “Oh dear, I don’t think I want to come back here again”. (Participant #3; female, age 71)

4.4.2.2 Loyalty

Participants reported that their sense of loyalty was a reflection of the relationship they had developed with their audiologist.

I went there for many years, right up to the time she retired, and I was very happy with what she did. She provided me with everything that I asked for. (Participant #5; male, age 89)

In summary, the therapeutic relationship was described as the heart of patient-centred audiological rehabilitation. For a therapeutic relationship to develop and be maintained trust was an essential ingredient; an effective therapeutic relationship was associated with patient loyalty.

4.4.3 Category 2: Players: audiologist and patient

Participants described the two players in the development of the therapeutic relationship: the audiologist and the patient. Each player is a subcategory and is described below. Figure 4.1 displays how audiologist and patient are both essential in
forming the therapeutic relationship and concurrently facilitating the third category of patient-centred audiological rehabilitation: clinical processes.

It's not just a question of the clinician, it's a question of the patient, and the two have got to come together. (Participant #8; male, age 72)

4.4.3.1 Audiologist

Participants described their high expectations of the audiologist in terms of both technical competence and interpersonal skills. Technical competence with equipment and devices was recognised as important to patients but was rarely considered sufficient for providing patient-centred audiological rehabilitation. In addition, participants expected the audiologist to be an expert in hearing, hearing disability, and hearing rehabilitation; without such skills, participants felt that the audiologist would not be able to individually tailor their care. One participant described how she believed technical competence and interpersonal skills should go hand in hand in patient-centred care:

Feeling that people know what they're doing, that they've been well trained, that they have a level of expertise to try and give you a hearing aid which is going to be the very best for your particular circumstances, and that they care, and that they are willing to keep trying until they do find something that will be most suitable for you. (Participant #3 female, age 71)

One participant ascribed a monetary value to the combination of technical and interpersonal skills to highlight their importance:

When you talk to an audiologist, their skill and their training just shines through. You immediately know that this is a person who knows what they're talking about. I feel comfortable from that point of view, but then, if it's a human being that I can relate to, that makes it so much better, so much easier. And if it's going to cost me 10% - 20% extra, I'd be happy to pay for that. (Participant #10; male, age 77)
Interpersonal skills were seen as facilitators or barriers of patient comfort and were related to an audiologist’s ability to form a therapeutic relationship with a patient. Specifically, two areas of interpersonal skills were highlighted: communication and professionalism. Good communication skills included being friendly and making the patient feel cared for and understood. This also related to feeling unrushed or unpressured. Poor communication skills were exemplified by experiences where the audiologist did not appear to listen, or value the patient’s perspective.

“.An unhurried conversation, which is nevertheless focused on determining the patient’s history, and determining their perceptions of the difficulties with hearing that they are experiencing. And it would also focus on eliciting from the patient difficulties that other people have with them, like members of their own family. (Participant #7, male, age 70)

When I leave (I feel) an element of frustration, that I am not being fully listened to, that I’m listened to up to a point, and then there’s an inconvenience, or a difficulty in really following through what she’s saying and a sense of “Oh, she’s being very fussy, pedantic, nit picking”. But it’s my hearing and I need to be able to be comfortable that whatever I’ve got, it’s the best that can be done for me at my level of finance, that I’m getting the best outcome that I can get. (Participant #3; female, age 71)

In the context of audiological rehabilitation where hearing aids were recommended, an audiologist’s professionalism was highly valued. Participants wanted to know that the audiologist’s recommendations were not influenced by his or her own potential to benefit. The professionalism of the audiologist was displayed by making any financial arrangements overt, by investing the time to develop the therapeutic relationship and by showing care and understanding. While participants’ experience of professional behaviour was mixed, those who had a negative experience felt strongly about their discomfort:

I’ve spoken to a number of people with hearing loss that all find the same thing, (audiologists) are like used car salesmen; not very professional. (Participant #4; male, age 79)
In contrast, when participants reported that their audiologist showed professionalism and integrity, such discomfort was dissipated:

(My audiologist), a man of high integrity, takes his time. Yet on the other hand he's not out of business. It's possible (to have integrity), but a lot depends on the person, their motivation and their upbringing. (Participant #8; male, age 72)

4.4.3.2 Patient

Participants recognised their roles in obtaining the best audiological rehabilitation outcomes although they placed less emphasis on this than the audiologist’s role; they described their responsibilities to themselves and their audiologist. Responsibilities included being motivated to ask questions, being inquisitive and interested in their audiological rehabilitation and taking responsibility for their on-going care:

Another obstacle might be a patient that just doesn't listen, a patient that wants to rush in, get the deal done, and get out. Some people imagine themselves to be so important and so busy that they really haven't got time. Then there are some people who, as far as their health matter is concerned, really don't see that it's important to take care of themselves. (Participant #8; male, age 72)

I need to have thought about my experience with them (hearing aids). If I can’t explain what I have heard and liked or not liked, I can’t give them (the audiologist) much to work with (Participant #2; female, age 68)

To summarise, the two players required to provide patient-centred audiological rehabilitation are the audiologist and the patient. Participants acknowledged their role in their own rehabilitation but place greater emphasis on the skills of the audiologist.
4.4.4 Category 3: Clinical Processes

The third category in the model of patient-centred audiological rehabilitation was clinical processes. Participants described two categories of clinical processes they expected to occur in their audiological rehabilitation (i.e., information exchange and decision-making/problem-solving) and the patient-centred way these processes should occur. In Figure 4.1, this category surrounds the second category (players) as a representation that both players are required for the clinical processes to occur in a patient-centred fashion.

4.4.4.1 Information exchange

All participants described their preference for, and experience with, giving and receiving information and feeling informed. An exchange of information was valued; that is, participants wished to be given the opportunity to express their perspectives and preferences. While audiologists have expertise that they need to impart, patients expressed a need to have their own expert perspective heard and listened to:

> There is no doubt that the audiologist is the trained expert in terms of possibilities and available appliances, which is obviously a critical issue here. So in a professional sense, yes, the audiologist absolutely is the expert. But the person with the practical experience of the hearing aid, and of hearing problems, is obviously the patient. (Participant #1; female, age 69)

Provision of information was seen as important to all participants. Information included explanations about the type and cause of hearing loss, clarification and reassurance regarding the experiential disability resulting from hearing loss and the array of options available for rehabilitation. In addition, participants reported preferences for access to different forms of information such as written, oral and reliable online information. While the reported volume of information sought by participants varied, all participants reported having to ask for more information about
why a particular hearing aid was right for them. This quote is an example of the link between effective information exchange and the other subcategory, decision-making/problem-solving.

Having a bit more information on why this particular hearing aid is better than that particular hearing aid (would have been good). So I really don't feel I've ever had that. (Participant #2; 68 year-old female)

### 4.4.4.2 Decision-making/problem-solving

Participants described their preferences for involvement in terms of processes such as decision-making and problem-solving. Participants saw access to hearing aid options as either a facilitator of patient involvement, or an opportunity to minimise their risk:

Choice is important, from the point of view that there are always options. There's never one best solution to a problem. (Participant #8; male, age 72)

I had an opportunity to try several different types (of hearing aids), and I also had a two-month period that if I had any concerns I could bring them back. There was some kind of arrangement, which minimised my financial loss if I decided they weren't for me. I think, for me that was important, it took the risk out of it. (Participant #7; male, age 70)

Participants described a preference for greater involvement in their audiological rehabilitation decisions than they had previously experienced. For example, there were instances of decision-making that participants felt were suboptimal in terms of their own involvement:

Next time I get hearing aids I will tell the audiologist that I want to be more involved in the decision because I haven't been happy with these (hearing aids). (Participant #2; 68 year-old female)

Another participant described his preference for being given the time to involve his family in the decision-making process, but said he was not given the opportunity:
There was pressure for me to immediately choose a hearing aid and get cracking, which I didn’t like. (Participant #10; male, age 77)

Problem-solving was particularly relevant to patients engaged in on-going hearing aid management. In this context, participants described patient-centred audiological rehabilitation as being able to trial different devices and having input into problem-solving with hearing aids (e.g., fine-tuning and repairs). For example, participants wearing hearing aids felt that their experiences afforded them valuable insight into problem-solving with hearing aids, and that this should be acknowledged by the audiologist. In essence, participants believed that they deserved to be treated as equals in these situations, rather than the audiologist holding the balance of power:

The audiologist saying I know best just doesn’t hack it anymore. (Participant #8; male, age 72)

In summary, older adults experienced with audiological rehabilitation, where the focus was hearing aids, described patient-centred audiological rehabilitation. Patient-centred care was defined in terms of the overarching theme of individualised care, which was evident in each of the three categories: the therapeutic relationship, the players (audiologist and patient) and clinical processes. The interpretation and relationships between each category and theme are described in Figure 4.1.

4.5 Discussion

The term patient-centred care is commonly used to describe how quality patient-practitioner interactions should occur. However, this term has not previously been defined in the context of audiological rehabilitation. This qualitative research revealed the major components of patient-centred care as defined by older recipients of audiological services who have owned hearing aids for at least one year.
The overarching theme of patient-centred audiological rehabilitation was individualised care. This highlights the importance of flexibility across all aspects of audiological rehabilitation and was common to all three categories: participants described the individualised relationship they sought, the individual characteristics that the players (audiologist and patient) should display and an individual preferences for being informed and involved in clinical processes. Individualised care could be considered the frame into which patient-centred audiological rehabilitation can occur. In patient-centred care literature the term ‘individual’ is common (Stewart, 1995; Mead & Bower, 2002; Cooper et al., 2008; Kitson et al., 2013). The notion of providing care appropriate to a patient requires respect for the individual, ability to adapt to the individual (Kitson et al., 2013) and a willingness to find common ground (Stewart et al., 2003). A similar desire for individualised care was reported in physiotherapy with respect to chronic conditions and long-term rehabilitation. In this context, Cooper et al (2008) described patients’ preferences for their physiotherapist to provide individualised treatment options and treatment delivery options. The importance of flexibility in rehabilitation is therefore highlighted. The commonality between definitions in health professions suggests that this is an essential part of providing patient-centred care; however, in audiology, little is known about how individualised care is operationalised in clinical encounters.

The three categories that make up the model of patient-centred audiological rehabilitation evident in the results obtained in the present study are built on individualised care. The first category, therapeutic relationship, was described as the central feature of patient-centredness and it is therefore visually represented at the centre of the model in Figure 4.1. This category represents the importance and nature of the patient-practitioner relationship; a topic that is commonly reported on in other areas of health. In medicine and allied health, a therapeutic relationship is “a fundamental requirement (of healthcare interactions) rather than a useful addition” (Mead & Bower, 2000 p.1090); yet its development is not straightforward. A quality
patient-practitioner relationship is complex and built through verbal and non-verbal exchanges; it is fragile and relies on a balance of power and negotiation of goals between parties (Roter, 2000). In other areas of healthcare, the presence of a strong therapeutic relationship is associated with improved patient outcomes such as satisfaction and adherence to treatment (Little et al., 2001; Mead & Bower, 2002; Ridd et al., 2009). While measurements of outcomes were beyond the scope of this study, participant descriptions suggest that positive outcomes also occur in audiological rehabilitation when a therapeutic relationship is developed.

According to participants in this study the key ingredient in developing a therapeutic relationship was trust, as has previously been reported in audiological decision-making (Laplante-Lévesque et al., 2010) and in medicine more broadly (Krupat et al., 2001). Descriptions of audiologist behaviours congruent with a trustworthy health professional were: interpersonal skills such as caring, listening and friendliness. Technical audiological skills were expected and rarely questioned unless the audiologist failed to gain the patient’s trust. Such skills and behaviours are consistent with findings from medicine. Thom et al (2001) examined the association between physician communicative behaviours and patient trust, and reported that communication skills (i.e., listening, asking open-ended questions), showing care, and making the patient feel comfortable, were all predictive of patient trust.

Trust is particularly important in the context of audiological rehabilitation due to the underlying commercial influences on audiologists recommending hearing aids in many settings. Financial barriers to trust have recently been alluded to in audiology literature in terms of its impact on decision-making (Laplante-Lévesque et al., 2010; English & Kasewurm, 2012). In addition, outside audiology, there is evidence that, in the absence of trust, patients are more likely to decline treatment when there are significant costs involved (Piette et al., 2005), and more likely to file malpractice claims (Levinson et al., 1997). In contrast, the presence of trust is associated with improved adherence to treatment (Safran et al., 1998). The current study adds to this growing
area of literature by confirming patients’ need for a trusting relationship in audiological rehabilitation irrespective of the financial arrangements involved.

The second category identified in patient-centred audiological rehabilitation relates to the players involved in creating and maintaining a therapeutic relationship: the audiologist and patient. As described above, the skills of the audiologist were deeply implicated in developing a therapeutic relationship. In addition to developing trust, practitioner communication skills such as listening, being sympathetic and showing emotional interest are widely accepted and evidenced to positively influence patient satisfaction in their own right (Mead & Bower, 2002). Such skills are described as patient-centred in medical (Roter et al., 1997; Stewart et al., 2000; Paasche-Orlow & Roter, 2003), nursing (Kitson et al., 2013), and allied health contexts (Cott, 2004; Cooper et al., 2008; Kidd et al., 2011). In contrast, in the current study, the role of the patient was not as overt as the audiologists’. While it was acknowledged that patients played an important role in the therapeutic relationship, this was often implicit in participant descriptions. According to Epstein (2006), patients’ self-perceived role in inducing patient-centred communication is poorly understood and challenging to measure, but worthy of future research in healthcare generally and in the context of audiological rehabilitation.

In the presence of a therapeutic relationship, participants described their preferences around two specific clinical processes: information exchange and decision-making/problem-solving. Such processes constitute the third dimension in patient-centred audiological rehabilitation and give insight into how patient-centred care might be operationalised clinically. The current research and that of Laplante-Lévesque et al (2010) suggest that in audiological rehabilitation, where hearing aids are recommended, adults value being informed. Being informed is more than receiving information; it requires a bilateral exchange (Ong et al., 1995). Participants in the current study spoke about wanting their story to be heard. This meant addressing the patient’s individual experience and also his/her emotional needs.
Mead and Bower (2000) advocate that a practitioner should not only seek a biopsychosocial perspective on a patient's condition, but also understand a patient's biography. That is, ask and listen to the patient's lived experience. To successfully hear and value the patient's perspective is, in essence, about balancing power and control (Mead & Bower, 2002); a skill that evidently evades many practitioners in health contexts (Roter et al., 1997).

Effective provision of information requires skill on the part of the audiologist. Generally, patients in the present study wanted more information than they were given and preferred it to be easier to understand. Both of these findings are echoed in patient-centred care literature and patient-practitioner communication research. In general, practitioners underestimate the amount of information patients want (Ong, et al., 1995) and have little understanding of patient health literacy (Ishikawa et al., 2009). While there is limited research in audiology on information exchange, a recent study in a paediatric audiology clinic found that parents and carers were given information unilaterally, rather than through a meaningful exchange (Watermeyer et al., 2012). Information dumping is said to be common in audiology (English, 2008) and, according to participants in this study, ineffective exchange of information has a negative impact on the process of decision-making.

The process of exchanging information is inextricably linked to decision-making and problem-solving. As reported in a previous audiological rehabilitation study, informing patients enabled shared decision-making (Laplante-Lévesque et al., 2010). Literature surrounding shared decision-making emphasises its positive association with patient adherence to treatment and self-management, particularly for chronic health conditions (Ong et al., 1995; Mead & Bower, 2002; Cooper et al., 2008). For these reasons, there is general consensus that patients should be more involved in health decisions (Frosh & Kaplan, 1999); however, individual patient preferences for involvement might differ, as has been described by Cooper et al (2008) in physiotherapy and Levinson et al (2005) in general practice. In contrast, audiology
patients overwhelmingly wanted to be part of the decision-making process. Current involvement of patients in audiological decision-making is unknown, although results of this study suggest there are many occasions where involvement is not optimal from a patient’s perspective.

The model of patient-centred audiological rehabilitation observed in Figure 4.1 provides an in-depth description of the preferences of older adults who own hearing aids: it goes some way to answering the question “what is meant by patient-centred audiological rehabilitation?” However, Figure 4.1 does not address ‘how’ audiologists can ensure their care is patient-centred. For patient-centred audiological rehabilitation to be clinically implemented the authors propose a clinical interpretation of the results of the current study. Figure 4.2 depicts how an audiologist could operationalise patient-centred care. Development of the therapeutic relationship is central to rehabilitation success and is hence depicted so. Informed and involved patients are pillars that stabilise the longevity of the therapeutic relationship and by taking an individualised approach the strength of the model is assured and the therapeutic relationship is protected.
Figure 4.2 Model for operationalising patient-centred audiological rehabilitation where hearing aids are recommended
The semi-structured qualitative interviews conducted in this study provided a rich source of data about participants’ experiences and preferences for their audiological rehabilitation. It is of note, however, that participants were predominantly Caucasian Australians over the age of 60 and all had experience of audiological rehabilitation. Therefore, the applicability of this model of patient-centred audiological rehabilitation may not extend to other patient groups, such as new patients attending audiology for the first time, to patients of different ages, and to those from different ethnic backgrounds. It is often reported that there is a cohort effect for adults over 80 years of age where a general preference for less involvement in their healthcare is seen (Bastiaens et al., 2007); however, participants across all ages (61 to 89 years) in this study appeared to display similar preferences for patient-centredness. Further research with a larger, more diverse sample of patients is called for to explore patient-centred care more broadly.

Findings of this study have implications for audiological practice and for future research in the field of audiology. This qualitative study reported two models: the first model is a description of what older adults with hearing aids consider to be patient-centred audiological rehabilitation. Participant preferences were abstracted through qualitative content analysis into three categories that are of importance to patients: the therapeutic relationship, the players and patient-centred clinical processes with an overall theme of individualised care. The second model provides clinicians and organisations with a guide to operationalising patient-centred care by focusing on the therapeutic relationship, and ensuring patients are informed and involved all while treating each patient as an individual. In addition, those involved in the education of audiologists could teach skills appropriate for the development and maintenance of therapeutic relationships, along with other patient-centred skills. Further research is required in audiology to address questions pertaining to the presence, nature and impact of patient-centred audiological rehabilitation; many questions remain. To what extent is audiological rehabilitation patient-centred? What are the barriers and
facilitators to patient-centred audiological rehabilitation from the perspective of audiologists? How does a patient-centred approach impact on audiological rehabilitation outcomes? In a world of evidence-based practice, these questions are paramount.

4.6 Acknowledgements

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4.7 References


Chapter five
CHAPTER 5

Communication patterns in audiological rehabilitation history-taking: Audiologists, patients and their companions


5.1. Abstract

5.1.1. Objectives

The nature of communication between patient and practitioner influences patient outcomes. Specifically, the history-taking phase of a consultation plays a role in the development of a relationship and in the success of subsequent shared decision-making. There is limited research investigating patient-centred communication in audiology and this study is the first to investigate verbal communication in an adult audiological rehabilitation context. This research aimed, first, to describe the nature of verbal communication involving audiologists, patients and companions in the history-taking phase of initial audiology consultation and, second, to determine factors associated with communication dynamics.

5.1.2. Design

Sixty-three initial audiology consultations involving patients over the age of 55, their companions when present and audiologists, were audio-video recorded. Consultations were coded using the Roter Interaction Analysis System (RIAS) and
divided into three consultation phases: history, examination and counselling. This study analysed only the history-taking phase in terms of opening structure, communication profiles of each speaker and communication dynamics. Associations between communication dynamics (verbal dominance, content balance and communication control) and 11 variables were evaluated using Linear Mixed Model methods.

5.1.3. Results

The mean length of the history-taking phase was 8.8 minutes (range 1.7 to 22.6). A companion was present in 27% of consultations. Results were grouped into three areas of communication: opening structure, information exchange and relationship building. Examination of the history opening structure revealed audiologists’ tendency to control the agenda by initiating consultations with a closed-ended question 62% of the time, followed by interruption of patient talk after 21.3 seconds, on average. The aforementioned behaviours were associated with increased verbal dominance throughout the history and increased control over the content of questions. For the remainder of the history, audiologists asked 97% of the questions and did so primarily in closed-ended form. This resulted in the audiologist talking as much as the patient and much more than the companions when they were present. Questions asked by the audiologist were balanced in topic: biomedical and psychosocial/lifestyle; however, few emotionally-focussed utterances were observed from any speaker (less than 5% of utterances).

5.1.4. Conclusions

Analysis of verbal communication involving audiologists, patients and companions in the history-taking phase in 63 initial audiology consultations revealed a communicative exchange that was audiologist controlled and structured, but covered both medical and lifestyle content. Audiologists often attempted to create a relationship with their patients; however little emotional relationship building occurred which may have implications later in the consultation when management decisions are being made. Globally, these results are not in line with patient-
centred communication principles. Further research and changes to clinical practice are warranted to transform patient-centred communication from an ideal to a reality.
5.2. Introduction

Patient-centred communication in health consultations has been associated with improved health outcomes, such as satisfaction with care and adherence to treatment (Mead & Bower 2002b; Stewart 1995). This is particularly true in the context of chronic conditions where effective communication can facilitate patients’ understanding of choice between multiple rehabilitation options and self-management (see review by Mead & Bower 2002b). Despite an abundance of literature in primary and allied healthcare about patient-practitioner communication, little published research has broached this topic in audiology (Knudsen et al. 2010; Meyer et al. 2014). There is, however, an increased awareness of patient-centred practice in audiological rehabilitation (English 2005; Hickson 2012) and this is largely driven by concern surrounding the stagnant growth in take-up, use of and satisfaction with hearing aids, despite advances in hearing aid technology (Kochkin 2009; Schneider et al. 2010).

While there is little argument surrounding the philosophy of patient-centredness, there is no consensus on a specific definition, practitioner behaviours that characterise it and how it should be operationalised. In their highly cited review of conceptual and empirical literature in the field, Mead and Bower (2000a) proposed that the relationship between patient and practitioner in a patient-centred interaction differs from traditional, biomedical-focused interactions in five ways: a biopsychosocial perspective is taken; the patient is considered as a whole person; power and responsibility are shared; the therapeutic alliance is emphasised; and the practitioner reflects on their influence. Despite the widespread acceptance of this definition, it has also been argued that patient-centredness is context-specific (Hughes et al. 2008) and consequently, several definitions have been developed in other healthcare contexts (see review by Grenness et al. 2014b; Chapter 2, section 2.4). Common across all definitions is that patient-centredness has become an encompassing term for quality care that emphasises interpersonal skills (Mead & Bower, 2000a) and communication (Levinson et al. 2010), which subsequently leads to a strong relationship, a holistic (i.e., biopsychosocial) understanding of the
patient and partnership in decision-making (Little 2001; Mead & Bower, 2000a; Stewart 1995). To capture the occurrence and nature of patient-centred interactions, communication between patients and practitioners is often examined (Epstein et al. 2005).

 Despite ongoing academic debate surrounding the conceptualisation and measurement of patient-centred care, researchers have highlighted the benefits of patient-centred interactions for patient outcomes. Most commonly, benefits are documented in terms of higher levels of treatment adherence (Haskard Zolnierek & DiMatteo 2009; Robinson et al. 2008), superior physical and emotional outcomes (Epstein et al. 2005; Gilbert & Hayes 2009; Stewart 1995; Stewart et al. 2000) and enhanced patient and practitioner satisfaction (Mead & Bower 2002a; Wolff et al. 2008). In addition, while large, randomised studies are rare in this area, multiple government organisations advocate the widespread implementation of patient-centred practice in all areas of healthcare (Luxford 2010). Nevertheless, research suggests that patient-centred care is not consistently provided (Swenson et al. 2006).

 Roter et al (1997) provided a seminal example of how communication can be examined and integrated with the concept of patient-centred care. In this study, five discrete profiles of communicative behaviour between 127 primary care physicians and 537 patients were observed. At one extreme, a ‘narrowly biomedical’ communication pattern, consistent with practitioner-centred communication, was exemplified by mostly biomedical utterances and a large proportion of question asking by the doctor. This pattern was used by 68% of doctors in the study. A patient-centred communication profile was described as a ‘psychosocial’ pattern where psychosocial exchange dominated (i.e., doctor asking fewer questions and patient expressing concerns). Such communication occurred in just 7% of consultations. Two of the three remaining patterns were between practitioner-centred and patient-centred communication and the final pattern was consumerist in nature, where the patient held more control than the doctor. In addition to describing behaviours that operationalise patient-centred
communication, the results of the study by Roter et al suggest that a patient-centred interaction is not a handover of control from practitioner to the patient, but rather a meeting of two experts. That is, both parties bring their own expert information to the interaction and, therefore, neither party controls or dominates the consultation.

Specific communicative behaviours, indicative of patient-centredness, are observable in particular consultation phases (Lazare et al. 1995; Robinson & Heritage 2006). For example, rapport building is often the focus of the initial phase of an appointment whereas decision making occurs after the clinical examination (Robinson & Heritage 2005; 2006). Such communicative behaviours at different phases of a consultation can occur along a continuum from a practitioner-centred approach, typified by a narrow focus, practitioner control and dictation of decisions, through to a patient-centred approach, which is characterised as mutual, negotiated and in partnership. The latter approach is considered the gold standard in clinical communication (Roter 2000).

When dividing a consultation into separate phases, the classification of Carter and Inui (1982) is often used. This classification proposes that each phase fulfils a different purpose and contains specific behaviours. The initial phase of a patient-practitioner interaction, the history-taking phase, is considered particularly important for setting up a patient-centred consultation. History-taking is a time for building rapport and learning the patient’s perspective; such information may facilitate treatment decision-making later in the consultation and is of particular importance for rehabilitation or management of chronic health conditions (Beck et al. 2002). Elements of effective patient-centred history-taking are well documented and can, in themselves, positively influence patient outcomes. For example, the presence of psychosocial talk in the history-taking phase of a consultation influences patient satisfaction more positively than at any other phase of a consultation (Eide et al. 2002). To date, little is known about how history-taking occurs in audiology and it seems that this particular phase of a consultation is worthy of attention.
The presence and nature of patient-centred communication in audiological rehabilitation is yet to be extensively investigated. However, recent qualitative studies have provided insight into patient and audiologist preferences for patient-centred behaviours. Grenness et al. (2014a) studied patient perspectives on patient-centred care in audiology. Older adults, who had owned hearing aids for more than a year and who therefore had multiple experiences to draw from, described patient-centred audiologists as those who valued a therapeutic relationship, ensured the patient was informed, facilitated patient involvement in decisions and provided individualised care. Similarly, three recent studies explored adult patients’ beliefs about facilitators to hearing help seeking and decision-making (Laplante-Lévesque et al. 2010; 2012; Poost-Foroosh et al. 2011). In these studies, patients reported a preference for patient-centred audiologist behaviours. From the audiologist’s perspective, a preference for patient-centred communication has also been reported (Laplante-Lévesque et al. 2014). These findings are consistent with definitions developed in other areas of health (see Grenness et al. (2014b) or Hughes et al. (2008) for reviews). An important next step is to examine the nature of communication that occurs in audiological rehabilitation consultations.

There are numerous techniques for examining the nature of patient-practitioner interactions in health consultations. For example, qualitative approaches such as narrative or linguistic based methods provide depth and insight into the complexities of interactions, whereas quantitative approaches typically identify predetermined behaviours and content, thereby facilitating comparison and identification of mediating factors. The recent proliferation of interaction analysis systems in the absence of a unified concept of ‘quality’ resulted in systems that have poor reliability or validity, lack theoretical backing and have been used in few published studies (Boon & Stewart 1998; Mead & Bower 2000b). Researchers therefore recommend that preference be given to analysis systems that are validated and frequently published (Boon & Stewart 1998; Mead & Bower 2000b).
One method, the Roter Interaction Analysis System (RIAS), developed by Debra Roter and colleagues (2002), has been used in over 250 published studies and is the most widely used system for quantitative analysis of health interactions internationally (see RIASworks.org for a full list). This method of analysis is underpinned by social-exchange theory. This theory suggests that dialogue between a patient and practitioner shapes interactions (Roter & Larson 2002). Dialogue can be broadly grouped as either socio-emotional or task-focused and is further classified based on the balance of control. Control in patient-practitioner interactions occurs across a spectrum (i.e., paternalistic, where the practitioner controls the interaction and dialogue, to consumerist, where the patient is in control). In addition to classifying practitioner and patient talk, the system allows for third-party communication and presents results in a format that can be interpreted according to the definition of patient-centred care appropriate for a given context. Within the system, calculations of verbal dominance and control that have previously been associated with the spectrum of patient-practitioner interactions are available (e.g., high practitioner control and verbal dominance are observed in paternalistic interactions).

The RIAS was originally devised for medical research and has subsequently been adapted for other areas of healthcare, including nursing, pharmacy, dentistry, occupational therapy and podiatry (Cavaco & Roter 2010; Vegni et al. 2010). However, to date, this system has not been used in an audiological context. When using the RIAS, trained coders assign a unique code to each patient, companion or practitioner utterance within a video- or audio-recorded consultation. From this, communication profiles for each speaker can be quantified and analysed in terms of content, form and the extent of patient-centredness. Coders can document the different phases of a consultation (e.g., history, exam and counselling) and, subsequently, analysis can be conducted on particular phases or the entire consultation.

The study reported here is the first to investigate communication in audiological rehabilitation consultations through analysis of the interaction using a well
validated system, the Roter Interaction Analysis System (RIAS). This study focussed on the history-taking phase in audiology and addressed two aims: 1) to describe the nature of verbal communication in the history-taking phase of initial audiological rehabilitation consultations in terms of structure, content and dynamics and 2) to identify factors that influence patient-centred communication dynamics between an audiologist, patient and companion (if present) during the history-taking phase of these consultations.

5.3. Materials and method

5.3.1. Study sample

Audiologists working in adult rehabilitation were invited to participate through advertising and professional contacts and were asked to recruit patients over 55 years to have their audiology consultation filmed. Filming took place from September 2011 to April 2013 across Australia. Consultations were included in the study if the audiologist and patient were interacting for the first time for hearing assessment and there was discussion of rehabilitation options; or if it was a second interaction about rehabilitation options where the initial consultation was hearing assessment only. Consultations were excluded from analysis for the following reasons: review consultation or hearing aid fine tuning; audio/video was incomplete or poor quality; consultation format was atypical (i.e., multiple people assessed in one consultation or a student audiologist was present); or the patient, audiologist or companion spoke in a language other than English during the consultation.

5.3.2. Procedure

This study was conducted under the ethical oversight of the Royal Victorian Eye and Ear Hospital Human Research Ethics Committee (10/964H), University of Queensland Behavioural and Social Sciences Ethical Review Committee (2011000857) and Australian Hearing HREC (AHHREC2012-13) and adhered to the principles of the National Health and Medical Research Statement on Research
Involving Human Subjects. Written informed consent was obtained from each participating audiologist, patient and companion before, or on the day of, the consultation. When a companion attended the consultation, the audiologist was asked to maintain normal practice regarding the presence and involvement of the companion. All participants were advised that the study was investigating clinical processes and interpersonal interactions. Participants completed a short demographic questionnaire immediately before or after the filmed consultation. Each consultation was filmed using the video application on an Apple iPod touch or iPhone 4 mounted on a mini portable tripod. The camera was positioned to provide the optimal view of all participants while remaining as inconspicuous as possible. In some instances the optimal view was compromised to maintain inconspicuousness. Consultations were filmed rather than audio-recorded to allow for evaluation of nonverbal communication in future studies. The entire duration of the consultation was recorded without the researcher present. Videos were later uploaded by the researcher to a personal computer, edited to ensure only the consultation was viewed and saved as audio-video digital files (.mp4 or .avi format). Editing was necessary because the researcher started and stopped the recording and could be seen on camera leaving the room before the patient and clinician arrived and after they had left; these aspects of the recording were edited out. Funding source (self or government), duration of consultation, pure tone audiometry results and self-reported concerns of the patient were documented.

The consultations were analysed by two trained coders using the RIAS software according to the system manual. The RIAS provides a predefined list of 41 utterance codes: 40 of those can be used for practitioner utterances and 35 can be used for patient or companion utterances. Common definitions of each RIAS code in the audiological context were agreed upon after extensive discussion in the research team; the resulting RIAS coding schema, modified for audiology, can be obtained from the corresponding author. The RIAS software played audio-video files while simultaneously providing access to codes. Researchers assigned a code to each utterance spoken by the audiologist, patient and companion. Utterances were defined as the smallest discriminable speech segment to which a single
meaning can be defined (Roter & Larson 2002). The length of utterances varied; each utterance was identified to convey one meaning. For example, compound sentences were divided and a new utterance was created after a pause in speech greater than 1 second, as suggested by the RIAS coding guidance. While nonverbal communication such as gesture was not coded, the tone or affect of utterances dictated the type of code allocated, as defined in the RIAS training manual.

The current analysis focusses solely on communication in the history-taking phase of consultations. While coding, the researchers documented each phase of the consultation with guidance from the RIAS manual and according to the classification of Carter and Inui (1982): opening, history, exam, counselling and closing. The authors defined the start of the history as when the audiologist asked their first probing question (e.g., “what brings you in today?”). The exam phase commenced with the clinician “orientating” the patient to the upcoming examination. The total length of the consultation was timed from when the audiologist and patient entered the consultation room to when the audiologist and patient left the consultation room.

5.3.3. Data analysis

All data analysis was performed using SPSS software, version 21 (SPSS Inc., Chicago, Ill). Analysis is described in five subsections: the history-taking opening structure, communication profiles, communication dynamics, factors influencing communication dynamics and coding reliability.

5.3.3.1. History-taking opening structure

At the commencement of the history, the opening question structure (open- versus closed-ended) and behaviours immediately following were documented. Means and standard deviations were calculated.

5.3.3.2. Communication profiles

In accordance with the methods recommended by Roter and Larson (2001), the means, ranges and frequency of each code were grouped into four mutually
exclusive categories for each speaker (see Table 5.1). Audiologist categories include: Education and Counselling, Data Gathering, Building a Relationship and Facilitation and Patient Activation. Patient and companion categories include: Information Giving, Question Asking, Building a Relationship and Activation and Engagement. In this context, the term activation refers to increased participation throughout the consultation as a result of expressing expectations, preferences and perspectives.

Differences in communication profiles between speaker groups were examined using one way between subjects Analysis of Variance tests (ANOVAs) and, if significant, post hoc testing with Bonferroni correction. Differences in the proportion of utterances in each category for each speaker when a companion was present, compared to not present, were examined using independent samples t-tests. Assumptions were checked via Shapiro-Wilk’s test for normality of distribution and by Levene’s test for equality of variances for homogeneity.
Table 5.1 RIAS categories and codes for audiologists and patients/companions including examples from the study

<table>
<thead>
<tr>
<th>AUDIOLOGIST CATEGORY</th>
<th>CODE</th>
<th>EXAMPLE FROM STUDY</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EDUCATION AND COUNSELLING</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biomedical topics</td>
<td></td>
<td>“There are many types of hearing aids”</td>
</tr>
<tr>
<td></td>
<td>Medical condition</td>
<td>“Hearing loss can happen gradually”</td>
</tr>
<tr>
<td></td>
<td>Counselling</td>
<td>“I suggest you have your wax removed by your doctor”</td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td>“You’ll need to talk to the researcher afterwards”</td>
</tr>
<tr>
<td>Psychosocial topics</td>
<td></td>
<td>“Restaurants are often noisy places”</td>
</tr>
<tr>
<td></td>
<td>Lifestyle</td>
<td>“It sounds like things have been going well in general”</td>
</tr>
<tr>
<td></td>
<td>Psychosocial</td>
<td>“You should really wear earmuffs at work”</td>
</tr>
<tr>
<td></td>
<td>Counselling</td>
<td></td>
</tr>
<tr>
<td><strong>DATA GATHERING</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biomedical questions</td>
<td></td>
<td>“Have you ever had an ear infection?”</td>
</tr>
<tr>
<td></td>
<td>Closed-ended</td>
<td>“What can you tell me about your hearing?”</td>
</tr>
<tr>
<td></td>
<td>Open-ended</td>
<td></td>
</tr>
<tr>
<td>Psychosocial questions</td>
<td></td>
<td>“Do you struggle to hear your family?”</td>
</tr>
<tr>
<td></td>
<td>Closed-ended</td>
<td>“What do you find most difficult?”</td>
</tr>
<tr>
<td></td>
<td>Open-ended</td>
<td>“Pardon?”</td>
</tr>
<tr>
<td>Bid for repetition</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>BUILDING A RELATIONSHIP</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social talk</td>
<td></td>
<td>“Looks like a nice day for a walk”</td>
</tr>
<tr>
<td>Positive talk</td>
<td></td>
<td>“I see...[continues talking]”</td>
</tr>
<tr>
<td></td>
<td>Agreements</td>
<td>“Great work”</td>
</tr>
<tr>
<td></td>
<td>Approvals</td>
<td>“Sounds like you’re very active!”</td>
</tr>
<tr>
<td></td>
<td>Compliments</td>
<td>“Laughter”</td>
</tr>
<tr>
<td>Negative talk</td>
<td></td>
<td>“I’m surprised they recommended that one”</td>
</tr>
<tr>
<td></td>
<td>Criticisms</td>
<td>“No, the wax didn’t cause a permanent loss”</td>
</tr>
<tr>
<td></td>
<td>Disagreements</td>
<td></td>
</tr>
<tr>
<td>Emotional talk</td>
<td></td>
<td>“I imagine that must be a real strain on the family”</td>
</tr>
<tr>
<td></td>
<td>Empathy</td>
<td>“I’m sorry this might be uncomfortable”</td>
</tr>
<tr>
<td></td>
<td>Concern</td>
<td>“We will be able to do something to help with that”</td>
</tr>
<tr>
<td></td>
<td>Reassurance</td>
<td>“We can work on this together”</td>
</tr>
<tr>
<td></td>
<td>Partnership</td>
<td>“My mother went through the same ordeal”</td>
</tr>
<tr>
<td></td>
<td>Self-disclosure</td>
<td>“Many people have the same trouble”</td>
</tr>
<tr>
<td></td>
<td>Legitimising</td>
<td></td>
</tr>
</tbody>
</table>
### FACILITATION AND PATIENT ACTIVATION

<table>
<thead>
<tr>
<th>Participatory facilitators</th>
<th>Procedural talk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Back channels</td>
<td>“Ok, now…”</td>
</tr>
<tr>
<td>Checks</td>
<td>“I’ll take a look in your ears first”</td>
</tr>
<tr>
<td>Asks for opinion</td>
<td></td>
</tr>
<tr>
<td>Asks if understood</td>
<td></td>
</tr>
<tr>
<td>Asks for reassurance</td>
<td></td>
</tr>
<tr>
<td>Asks for permission</td>
<td></td>
</tr>
</tbody>
</table>

### PATIENT/COMPANION CATEGORY

#### INFORMATION GIVING

<table>
<thead>
<tr>
<th>Biomedical topics</th>
<th>EXAMPLE FROM STUDY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Therapeutic regimen</td>
<td>“I’ve never had hearing aids before”</td>
</tr>
<tr>
<td>Medical condition</td>
<td>“I guess I’ve had a hearing loss for over 10 years”</td>
</tr>
<tr>
<td>Other</td>
<td>“Happy to be involved as long as I don’t end up on TV”</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Psychosocial topics</th>
<th>EXAMPLE FROM STUDY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lifestyle</td>
<td>“I play golf on Wednesdays”</td>
</tr>
<tr>
<td>Psychosocial</td>
<td>“I find it difficult to hear while I’m playing golf”</td>
</tr>
</tbody>
</table>

### QUESTION ASKING

<table>
<thead>
<tr>
<th>Biomedical questions</th>
<th>EXAMPLE FROM STUDY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical</td>
<td>“Could the plane flight have caused my hearing loss?”</td>
</tr>
<tr>
<td>Therapeutic</td>
<td>“Are headphones going to do the same job as hearing aids?”</td>
</tr>
<tr>
<td>Other</td>
<td>“So they’re filming you all day?”</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Psychosocial questions</th>
<th>EXAMPLE FROM STUDY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychosocial</td>
<td>“Do you think it’s going to get worse as I get older?”</td>
</tr>
<tr>
<td>Lifestyle</td>
<td>“Do you think that the noise at work caused this?”</td>
</tr>
</tbody>
</table>

### BUILDING A RELATIONSHIP

<table>
<thead>
<tr>
<th>Social talk</th>
<th>EXAMPLE FROM STUDY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive talk</td>
<td>“I didn’t take me long to find a park”</td>
</tr>
<tr>
<td>Agreement</td>
<td>“Ok, I see”</td>
</tr>
<tr>
<td>Approvals</td>
<td>“Thank you for seeing us both”</td>
</tr>
<tr>
<td>Compliments</td>
<td>“My GP is wonderful”</td>
</tr>
<tr>
<td>Laughter/jokes</td>
<td>“Can you see right through (my head) to the other side?”</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Negative talk</th>
<th>EXAMPLE FROM STUDY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Criticisms</td>
<td>“My kids always mumble”</td>
</tr>
<tr>
<td>Disagreements</td>
<td>“I don’t think that is actually the case”</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Emotional talk</th>
<th>EXAMPLE FROM STUDY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Empathy</td>
<td>(no example in this study)</td>
</tr>
<tr>
<td>Concern</td>
<td>“I’m worried I’ll lose my job if this keeps up”</td>
</tr>
<tr>
<td>Reassurance/Shows optimism</td>
<td>“I think I do pretty well all up”</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>Legitimising</td>
<td>“I hear just as well as everyone else in that place”</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>ACTIVATION AND ENGAGEMENT</strong></th>
<th><strong>Participatory facilitators</strong></th>
<th><strong>Procedural talk</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Checks</td>
<td>“So you said we could talk about that today, right?”</td>
<td>“I’d like to clarify something”</td>
</tr>
<tr>
<td>Asks if understood</td>
<td>“Do you know what I mean?”</td>
<td>“Let’s see...”</td>
</tr>
<tr>
<td>Asks for reassurance</td>
<td>“Am I going to have to get a hearing aid?”</td>
<td></td>
</tr>
<tr>
<td>Asks for service</td>
<td>“Could you send a report to my GP?”</td>
<td></td>
</tr>
<tr>
<td>Orientations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transitions</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
5.3.3.3. Communication dynamics
Three commonly reported measures were used to describe the communication dynamics between audiologists and patients/companions: verbal dominance, patient-centredness (referred to here as content balance) and communication control (Cooper et al. 2003; McCarthy et al. 2013; Pawlikowska et al. 2012; Roter et al. 1997). Verbal dominance was measured by dividing the number of audiologist utterances by the number of patient (and companion) utterances. A ratio of 1 equates to an even distribution of utterances; <1 indicates patient dominance and >1 indicates audiologist dominance. Content balance was measured by dividing the number of psychosocial/lifestyle and socio-emotional utterances by the number of biomedical utterances. A ratio >1 is considered an adequate balance of topics, whereas a ratio <1 is considered a dominance of biomedical utterances (Cooper et al. 2008; Pawlikowska et al. 2012). Lastly, communication control was determined based on initiations of questioning and information giving (Roter 2000; Roter et al. 1997). Communication control was measured by dividing the number of patient controlled utterances (patient questions, audiologist information giving and counselling biomedical and psychosocial utterances) by audiologist controlled utterances (audiologist questions, procedural utterances and patients’ biomedical information). A ratio > 1 suggests the patient controlled the content, whereas a ratio < 1 reflects audiologist control.

5.3.3.4. Factors influencing communication dynamics
Eleven potential predictor variables were evaluated in relation to three outcome variables (verbal dominance, content balance and communication control). Variables associated with communication dynamic measures in other contexts, such as gender (Bertakis & Azari, 2007), age and experience (Roter & Hall, 2006), consultation length (Laws et al. 2011) and presence of a companion (Wolff, 2011) were included in this study. In addition, based on previous literature pertaining to history-taking specifically, variables such as time before interruption and opening question (Dyche & Swiderski, 2005; Haidet & Paterniti, 2003; Robinson & Heritage, 2006) were included. Given the novel nature of this study, variables specific to this
context, such as level of hearing loss and funding source were also included. In Australia, funding source might influence the processes that occur in an audiological consultation. Consultations were funded in one of two ways: self funded (i.e., the patient was responsible for all costs of their audiological care) or, through the Office of Hearing Services (termed government funded), an Australian federal government public subsidy scheme for aged or disabled pensioners, veterans and veteran spouses. This subsidy covers an audiometric assessment, rehabilitation discussion and contribution towards hearing devices (full subsidy for entry level hearing devices and partial subsidy for mid-advanced hearing devices). Four of the variables were continuous: audiologist years of experience, patient age, length of history and length of time before interruption at start of history-taking. Seven of the variables were categorical: audiologist sex, patient sex, matches between audiologist sex and patient sex, degree of hearing loss (categorised as normal/mild or moderate/severe/profound), consultation funding source (self funded or government funded), presence of companion (yes or no), solicitation of patient reason for attendance (yes or no).

Linear mixed modelling was used to establish the presence, direction and strength of associations between potential predictors and outcome variables. A random effect for audiologist was used to account for unbalanced audiologist clustering, given that a different number of consultations were filmed for each audiologist. Fixed effects factors of audiologist sex, patient sex, sex match, funding source, presence of companion, solicitation of reason for attendance and fixed effects covariates of audiologist experience, patient age, time until interruption and length of history were used. The bivariate relationship between each potential predictor and each outcome was first screened using a liberal alpha level of $p < 0.10$ to determine significance. Six of the eleven predictors were related to at least one outcome variable. These six predictors were analysed with the relevant outcome by removing each predictor from the model until only those with a $p$ value $\leq 0.05$ were left in the linear mixed model (backward stepwise regression). Diagnostics of residuals revealed that the assumption of constant variance was acceptable in all outcomes measures but ‘communication control score’ where outliers were
identified. In addition, the Shapiro-Wilk's test for normality of distribution revealed that the ‘communication control score’ outcome was positively skewed. For these two reasons, analysis was undertaken using transformed data, however this did not produce substantially different results. Therefore, the results using untransformed data are reported.

5.4. Results

5.4.1. Sample characteristics

A total of 86 consultations were filmed; 63 consultations with 26 different audiologists met the eligibility criteria and were included in the study (see Table 5.2 for participant and consultation characteristics). The majority of audiologists were female and clinical experience varied greatly from 1 to 40 years. Audiologists were employed in a variety of audiology clinics in Australia. Over half the patients were male (57%) and the average age was 71.6 years. Forty-nine percent of consultations (and subsequent rehabilitation) were self funded and the remainder was government funded. Companions were present in 17 of the 63 consultations (27%). Companions were predominantly female and, in all but two consultations, the companions were spouses.
Table 5.2 Summary of participant and consultation characteristics (N=63)

<table>
<thead>
<tr>
<th>PARTICIPANT</th>
<th>CHARACTERISTIC</th>
<th>Audiologists (n=26)</th>
<th>Patients (n=63)</th>
<th>Companions (n=17)</th>
<th>Consultations (n=63)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Gender</td>
<td>Female 62%</td>
<td>Female 43%</td>
<td>Female 65%</td>
<td>Mean (SD) 57.4 (20.3)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Male 38%</td>
<td>Male 57%</td>
<td>Male 35%</td>
<td>Range 27.3 – 111.0</td>
</tr>
<tr>
<td></td>
<td>Experience as Audiologist (years)</td>
<td>Mean (SD) 11.4 (10.1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Range 1 - 40</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Number of Consultations Filmed per Audiologist</td>
<td>1 19%</td>
<td>2 31%</td>
<td>3 42%</td>
<td>4 8%</td>
</tr>
<tr>
<td></td>
<td>Age (years)</td>
<td>Mean (SD) 71.6 (8.9)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Range 55 - 93</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Gender</td>
<td>Female 43%</td>
<td>Female 43%</td>
<td>Female 65%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Male 57%</td>
<td>Male 57%</td>
<td>Male 35%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Age (years)</td>
<td>Mean (SD) 71.6 (8.9)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Range 55 - 93</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Relation to Patient</td>
<td>Spouse 88%</td>
<td>Adult child 6%</td>
<td>Adult child 6%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Friend 6%</td>
<td>Friend 6%</td>
<td>Adult child 6%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Length (mins)</td>
<td>Mean (SD) 57.4 (20.3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Range 27.3 – 111.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Length of history (mins)</td>
<td>Mean (SD) 8.8 (4.3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Range 1.7 – 22.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Funding Source</td>
<td>Self funded 51%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Government funded 49%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Gender match</td>
<td>Female-female 30%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Patient : Audiologist)</td>
<td>Female-male 16%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Male-male 24%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Male-female 30%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hearing Loss According to Description Given to Patient</td>
<td>Normal hearing 3%</td>
<td>Mild 33%</td>
<td>Mild to moderate 43%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mild to moderate 43%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Severe to profound 2%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
5.4.2. RIAS coding reliability

Inter-and intra-rater reliability was tested with Intraclass Correlation Coefficients (ICC) with a 95% confidence interval (CI) after codes were compiled into the four RIAS categories shown in Table 5.1. Previous studies using RIAS commonly conducted inter-rater and, less commonly, intra-rater reliability measures using Pearson correlation; an average score of 0.85 has been reported for patient and practitioner utterances (Roter & Larson 2002). In this study, ICC was chosen due to its strength in assessing agreement in addition to the association between measurements (Müller & Büttner 1994).

Each coder coded a 10% random sample of consultations twice to assess intra-rater reliability. The intra-rater ICC was 0.91 (95% CI of 0.79 to 0.97), \( p < 0.001 \), for audiologist utterances and 0.99 (95% CI of 0.99 to 0.99), \( p < 0.001 \), for patient utterances. To assess inter-rater reliability, the two coders coded a 16% random sample of consultations. The inter-rater ICC was 0.97 (95% CI 0.95 to 0.98), \( p < 0.001 \), for audiologist utterances and 0.96 (95% CI 0.92 to 0.99), \( p < 0.001 \), for patient utterances (including companion). Intra-rater and inter-rater reliability were therefore excellent.

5.4.3. The nature of communication in the history-taking phase of the consultation

The first aim of the study was to describe the nature of communication in the history-taking phase of initial audiology consultations. Results for this section are presented in three parts: history-taking opening structure (the opening question and subsequent listening pattern), communication profiles for each speaker and communication dynamics.

5.4.3.1. History-taking opening structure

The most common question at the commencement of the history-taking phase was a closed-ended confirmation (62%) (e.g., “so, you’ve come in for a hearing test?”). Open-ended general questions, in which the patient’s reason for attending was solicited, occurred in 22% of consultations (e.g., “What brings you in to see me
today?”). In 76% of consultations where the patient went on to provide a detailed response (as opposed to giving a short response such as, “yes, that’s right”), the audiologist interrupted patients’ utterances after 21.3 seconds, on average. In consultations where the patient was not interrupted (23%), the patient spoke on average for twice as long (42.8 seconds). No significant relationship was found between length of patient talk without interruption and length of the history.

5.4.3.2. Communication profiles
The average consultation length was 57.4 minutes (range 27.3 to 111.0). The average length of the history-taking phase was 8.8 minutes; ranging from 1.7 to 22.6 minutes. The length of the history-taking phase was moderately correlated with the total consultation length (Pearson $r = 0.4$, $p < 0.05$). Audiologists and patients contributed similar numbers of utterances in the history-taking phase of the consultation (49%; 132.3 utterances, range 33.0 to 347.0; 49%, 132.6 utterances, range 17.0 to 347.0, respectively). When companions were present, their verbal contributions were, on average, 10% of the total utterances (27.7 utterances; range of 1 to 102).

Tables 5.3 and 5.4 display the mean, range and proportion of utterances per RIAS category for audiologists and patients/companions, respectively, in the history-taking phase of all consultations. For audiologists, the two most common categories of utterances were facilitation and patient activation (36%) and relationship building (36%). Within facilitation and patient activation, the greatest contribution was from “back channelling”, where the clinician encouraged the patient to continue talking by using short utterances such as “yeah [I’m listening]” or “right [go on]”. Relationship building from the audiologist was primarily comprised of agreements (e.g., “yes” or “ok”) followed by laughter, jokes or reassuring and encouraging utterances such as “at least we’ll know by the end of this appointment”. Data gathering was the third most common category of utterances. Over half the questions the audiologists asked were biomedical in nature (57% of data gathering utterances) as opposed to psychosocial/lifestyle in nature (42%). Closed-ended questions were by far the most common. Education
and counselling was the least common category of utterance for audiologists in the history-taking phase (7%). When the audiologist provided education and counselling to the patient it predominantly contained biomedical content (86% of education and counselling utterances) such as “wax build up is common”.

Most patient utterances (61%) gave information to the audiologist, split evenly between biomedical and psychosocial/lifestyle topics (see Table 4). Building a relationship was the second most common category of utterance. The proportion of relationship building utterances for patients (30%) was similar to the proportion for audiologists (36%). The majority of relationship building utterances by patients were “agreements”; however patients also contributed negative and emotional utterances such as “concern” (e.g., “I’m worried that there is something very wrong”) and “criticisms” (e.g., “they all mumble”). Proportionately, fewer patient utterances targeted activation and engagement (8%) compared to audiologists’. Patients asked few questions, on average fewer than one question for the entire history-taking phase (1% of utterances).

When a companion was present in a consultation, their most common utterances were attempts at building a relationship (52%); within that category, the most common utterances were “agreements” followed by “laughter/jokes”, such as, “I always thought it was just selective hearing (laughs)!”. The second most common category of utterance was information giving (41%), the majority of which pertained to psychosocial/lifestyle (e.g., “he doesn't go to golf anymore”). A similar proportion of utterances were seen for companions and patients in the categories of activation and engagement (3%) and question asking (1%); companions asked less than one question on average for the duration of the history.
Table 5.3 Profile of communication categories used by audiologists in the history-taking phase

<table>
<thead>
<tr>
<th>CATEGORY OF UTTERANCES</th>
<th>AUDIOLOGIST TALK (N = 63)</th>
<th>M</th>
<th>Range</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTAL UTTERANCES</td>
<td></td>
<td>132.5</td>
<td>33-347</td>
<td>100%</td>
</tr>
<tr>
<td>EDUCATION AND COUNSELLING</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biomedical topics</td>
<td></td>
<td>9.8</td>
<td>0-53</td>
<td>7%</td>
</tr>
<tr>
<td>Therapeutic regimen</td>
<td></td>
<td>7.4</td>
<td>0-47</td>
<td>6%</td>
</tr>
<tr>
<td>Medical condition</td>
<td></td>
<td>1.0</td>
<td>0-18</td>
<td>1%</td>
</tr>
<tr>
<td>Counselling</td>
<td></td>
<td>5.3</td>
<td>0-45</td>
<td>4%</td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td>1.1</td>
<td>0-18</td>
<td>1%</td>
</tr>
<tr>
<td>Psychosocial topics</td>
<td></td>
<td>0.8</td>
<td>0-3</td>
<td>0%</td>
</tr>
<tr>
<td>Lifestyle</td>
<td></td>
<td>2.4</td>
<td>0-20</td>
<td>2%</td>
</tr>
<tr>
<td>Psychosocial</td>
<td></td>
<td>1.7</td>
<td>0-12</td>
<td>1%</td>
</tr>
<tr>
<td>Counselling</td>
<td></td>
<td>0.1</td>
<td>0-6</td>
<td>0%</td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td>0.6</td>
<td>0-14</td>
<td>0%</td>
</tr>
<tr>
<td>DATA GATHERING</td>
<td></td>
<td>28.1</td>
<td>1-119</td>
<td>21%</td>
</tr>
<tr>
<td>Biomedical questions</td>
<td></td>
<td>16.3</td>
<td>1-64</td>
<td>12%</td>
</tr>
<tr>
<td>Closed-ended</td>
<td></td>
<td>14.0</td>
<td>0-53</td>
<td>11%</td>
</tr>
<tr>
<td>Open-ended</td>
<td></td>
<td>2.3</td>
<td>0-11</td>
<td>1%</td>
</tr>
<tr>
<td>Psychosocial questions</td>
<td></td>
<td>11.7</td>
<td>1-54</td>
<td>9%</td>
</tr>
<tr>
<td>Closed-ended</td>
<td></td>
<td>8.9</td>
<td>0-49</td>
<td>7%</td>
</tr>
<tr>
<td>Open-ended</td>
<td></td>
<td>2.7</td>
<td>0-9</td>
<td>2%</td>
</tr>
<tr>
<td>Bid for repetition</td>
<td></td>
<td>0.1</td>
<td>0-3</td>
<td>0%</td>
</tr>
<tr>
<td>BUILDING A RELATIONSHIP</td>
<td></td>
<td>47.1</td>
<td>8-134</td>
<td>36%</td>
</tr>
<tr>
<td>Social talk</td>
<td></td>
<td>5.4</td>
<td>0-66</td>
<td>4%</td>
</tr>
<tr>
<td>Positive talk</td>
<td></td>
<td>35.1</td>
<td>2-112</td>
<td>27%</td>
</tr>
<tr>
<td>Agreements</td>
<td></td>
<td>28.0</td>
<td>0-102</td>
<td>21%</td>
</tr>
<tr>
<td>Approvals</td>
<td></td>
<td>2.6</td>
<td>0-16</td>
<td>2%</td>
</tr>
<tr>
<td>Compliments</td>
<td></td>
<td>0.2</td>
<td>0-3</td>
<td>0%</td>
</tr>
<tr>
<td>Laughter/jokes</td>
<td></td>
<td>4.4</td>
<td>0-20</td>
<td>3%</td>
</tr>
<tr>
<td>Negative talk</td>
<td></td>
<td>0.3</td>
<td>0-4</td>
<td>0%</td>
</tr>
<tr>
<td>Criticisms</td>
<td></td>
<td>0.1</td>
<td>0-4</td>
<td>0%</td>
</tr>
<tr>
<td>Disagreements</td>
<td></td>
<td>0.2</td>
<td>0-2</td>
<td>0%</td>
</tr>
<tr>
<td>Emotional talk</td>
<td></td>
<td>6.3</td>
<td>0-25</td>
<td>5%</td>
</tr>
<tr>
<td>Empathy</td>
<td></td>
<td>0.1</td>
<td>0-2</td>
<td>0%</td>
</tr>
<tr>
<td></td>
<td>Proportion</td>
<td>Range</td>
<td>Percentage</td>
<td></td>
</tr>
<tr>
<td>----------------</td>
<td>------------</td>
<td>-------</td>
<td>------------</td>
<td></td>
</tr>
<tr>
<td>Concern</td>
<td>1.2</td>
<td>0-9</td>
<td>1%</td>
<td></td>
</tr>
<tr>
<td>Reassurance</td>
<td>4.1</td>
<td>0-19</td>
<td>3%</td>
<td></td>
</tr>
<tr>
<td>Partnership</td>
<td>0.0</td>
<td>0-1</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>Self-disclosure</td>
<td>0.6</td>
<td>0-10</td>
<td>1%</td>
<td></td>
</tr>
<tr>
<td>Legitimising</td>
<td>0.2</td>
<td>0-3</td>
<td>0%</td>
<td></td>
</tr>
</tbody>
</table>

**FACILITATION AND PATIENT ACTIVATION**  
47.2  6-179  36%

**Participatory facilitators**  
33.6  0-149  25%

- Back channels 22.5  0-102  17%
- Checks 9.3  0-41  7%
- Asks for opinion 1.1  0-5  1%
- Asks if understood 0.5  0-5  0%
- Asks for reassurance 0.1  0-1  0%
- Asks for permission 0.2  0-3  0%

**Procedural talk**  
13.6  0-44  10%

- Transitions 9.4  0-17  7%
- Orientations 4.3  0-31  3%

Proportion calculation: number of speaker utterances in RIAS category/total number of speaker utterances. The percentages shown represent these proportions.
Table 5.4 Profile of communication categories used by patient and companion in the history-taking phase

<table>
<thead>
<tr>
<th>CATEGORY OF UTTERANCE</th>
<th>PATIENT TALK (N = 63)</th>
<th>COMPANION TALK (n = 17)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>Range</td>
</tr>
<tr>
<td>TOTAL UTTERANCES</td>
<td>132.6</td>
<td>17-347</td>
</tr>
<tr>
<td>INFORMATION GIVING</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biomedical topics</td>
<td>80.8</td>
<td>11-200</td>
</tr>
<tr>
<td>Therapeutic regimen</td>
<td>41.0</td>
<td>3-107</td>
</tr>
<tr>
<td>Medical condition</td>
<td>37.0</td>
<td>3-92</td>
</tr>
<tr>
<td>Other</td>
<td>0.1</td>
<td>0-3</td>
</tr>
<tr>
<td>Psycosocial topics</td>
<td>39.4</td>
<td>1-113</td>
</tr>
<tr>
<td>Lifestyle</td>
<td>33.4</td>
<td>0-91</td>
</tr>
<tr>
<td>Psychosocial</td>
<td>6.0</td>
<td>0-33</td>
</tr>
<tr>
<td>QUESTION ASKING</td>
<td>0.9</td>
<td>0-7</td>
</tr>
<tr>
<td>Biomedical questions</td>
<td>0.7</td>
<td>0-7</td>
</tr>
<tr>
<td>Medical</td>
<td>0.2</td>
<td>0-4</td>
</tr>
<tr>
<td>Therapeutic</td>
<td>0.5</td>
<td>0-7</td>
</tr>
<tr>
<td>Other</td>
<td>0.0</td>
<td>0-0</td>
</tr>
<tr>
<td>Psycosocial questions</td>
<td>0.2</td>
<td>0-2</td>
</tr>
<tr>
<td>Psychosocial</td>
<td>0.0</td>
<td>0-1</td>
</tr>
<tr>
<td>Lifestyle</td>
<td>0.2</td>
<td>0-2</td>
</tr>
<tr>
<td>BUILDING A RELATIONSHIP</td>
<td>39.9</td>
<td>2-128</td>
</tr>
<tr>
<td>Social talk</td>
<td>6.1</td>
<td>0-97</td>
</tr>
<tr>
<td>Positive talk</td>
<td>21.9</td>
<td>0-97</td>
</tr>
<tr>
<td>Agreements</td>
<td>15.9</td>
<td>0-71</td>
</tr>
<tr>
<td>Approvals</td>
<td>0.3</td>
<td>0-7</td>
</tr>
<tr>
<td>Compliments</td>
<td>0.2</td>
<td>0-3</td>
</tr>
<tr>
<td>Laughter/jokes</td>
<td>5.6</td>
<td>0-17</td>
</tr>
<tr>
<td>Negative talk</td>
<td>3.4</td>
<td>0-13</td>
</tr>
<tr>
<td>Criticisms</td>
<td>2.8</td>
<td>0-13</td>
</tr>
<tr>
<td>Disagreements</td>
<td>0.5</td>
<td>0-4</td>
</tr>
<tr>
<td>Emotional talk</td>
<td>8.4</td>
<td>0-32</td>
</tr>
<tr>
<td>Empathy</td>
<td>0.0</td>
<td>0-7</td>
</tr>
<tr>
<td>Concern</td>
<td>6.3</td>
<td>0-26</td>
</tr>
<tr>
<td>Reassurance</td>
<td>1.4</td>
<td>0-7</td>
</tr>
<tr>
<td></td>
<td>Legitimising</td>
<td>0.7</td>
</tr>
<tr>
<td>----------------------</td>
<td>--------------</td>
<td>-----</td>
</tr>
<tr>
<td><strong>ACTIVATION &amp; ENGAGEMENT</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participatory facilitators</td>
<td>10.2</td>
<td>0-59</td>
</tr>
<tr>
<td>Checks</td>
<td>1.9</td>
<td>0-20</td>
</tr>
<tr>
<td>Asks if understood</td>
<td>0.8</td>
<td>0-8</td>
</tr>
<tr>
<td>Asks for reassurance</td>
<td>0.9</td>
<td>0-17</td>
</tr>
<tr>
<td>Asks for service</td>
<td>0.2</td>
<td>0-2</td>
</tr>
<tr>
<td><strong>Procedural talk</strong></td>
<td>8.2</td>
<td>0-44</td>
</tr>
<tr>
<td>Orientations</td>
<td>0.1</td>
<td>0-2</td>
</tr>
<tr>
<td>Transitions</td>
<td>8.2</td>
<td>0-39</td>
</tr>
</tbody>
</table>

Proportion calculation: number of speaker utterances in RIAS category/total number of speaker utterances. The percentages shown represent these proportions.
One way between subjects ANOVAs showed significant differences between the proportions of utterances within each communication category for audiologists, patients and companions (see Table 5.5). Post hoc testing with Bonferroni correction for multiple comparisons showed that audiologists used significantly fewer education and counselling utterances in the history than either patients or companions, whereas audiologists asked significantly more questions than patients and companions. Audiologists also contributed significantly more to facilitation and patient activation than patients and companions. There was no significant difference between the proportion of total relationship building utterances for audiologists and patients and audiologists and companions, however companions had significantly more utterances in the relationship building category than patients.

Despite there being no overall difference in the proportion of utterances related to building a relationship, some differences in the sub-categories of utterances (positive and negative talk) were evident. Post hoc testing with Bonferroni correction for multiple comparisons indicated that audiologists produced more positive utterances and fewer negative utterances, than their patients. Positive utterances primarily consisted of acknowledgement of information (agreements); this was evidenced by a correlation between positive utterances of audiologists and patient information giving utterances (Pearson $r = 0.6$, $p < 0.001$). The majority of relationship building audiologist utterances served the function of acknowledging patient utterances.
Table 5.5 One way ANOVA with Bonferroni correction for multiple comparison, difference in categories of utterances across speakers (N=63)

<table>
<thead>
<tr>
<th>CATEGORY OF UTTERANCE</th>
<th>One-way between subjects ANOVA</th>
<th>Post Hoc test (with Bonferroni correction)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean difference (Aud - pt)</td>
<td>95% CI</td>
</tr>
<tr>
<td>EDUCATION AND COUNSELLING / INFORMATION GIVING</td>
<td>F(2,37) = 331.70, p &lt; 0.001</td>
<td>-0.55**</td>
</tr>
<tr>
<td>DATA GATHERING / QUESTION ASKING</td>
<td>F(2,35) = 120.80, p &lt; 0.001</td>
<td>0.21**</td>
</tr>
<tr>
<td>BUILDING A RELATIONSHIP</td>
<td>F(2,38) = 4.60, p = 0.017</td>
<td>ns</td>
</tr>
<tr>
<td>Social talk</td>
<td>F(2,40) = 1.20, p = 0.310</td>
<td>ns</td>
</tr>
<tr>
<td>Positive talk</td>
<td>F(2,39) = 24.60, p &lt; 0.001</td>
<td>0.10*</td>
</tr>
<tr>
<td>Negative talk</td>
<td>F(2,35) = 25.74, p&lt;0.001</td>
<td>-0.02*</td>
</tr>
<tr>
<td>Emotional talk</td>
<td>F(2, 41) = 2.90, p = 0.067</td>
<td>ns</td>
</tr>
<tr>
<td>FACILITATION AND PATIENT ACTIVATION / ACTIVATION &amp; ENGAGEMENT</td>
<td>F(2,40) = 192.30, p &lt; 0.001</td>
<td>0.28**</td>
</tr>
<tr>
<td>TOTAL UTTERANCES</td>
<td>F(2,140) = 20.70, p &lt; 0.001</td>
<td>0.10</td>
</tr>
</tbody>
</table>

*p < 0.05 **p < 0.01

Equal variance could not be assumed for one-way ANOVA results due to significant Levene Statistic. Welch robust test of equality of means statistic is used to verify significance and is reported in this table. Proportion of own talk was used for this calculation excluding total talk which comprises of speaker raw score.
Total number of utterances was not significantly different between audiologists and patients; however, both audiologists and patients had significantly more utterances than companions. Despite this, as a proportion of their total utterances, companions asked the same number of questions as patients; however, patients gave significantly more information than companions.

Table 5.6 summarises the results of the independent samples *t*-tests comparing the effect of companion presence on the communication profiles of audiologists and patients. Presence of a companion had no effect on total number of utterances in the history-taking phase; nor did it affect the length of the history-taking phase. However, audiologists’ communication profile differed when a companion was present in a number of ways. First, as a proportion of their total utterances, audiologists undertook significantly more data gathering when a companion was absent than when present, *t*(61) = -2.2, *p* = 0.03. Second, the content of questions changed, with audiologists asking fewer psychosocial/lifestyle questions *t*(61) = -3.0, *p* = 0.004 and more biomedical questions, *t*(61) = 3.1, *p* = 0.003, when a companion was present. As a consequence, the patient gave more biomedical information and less psychosocial information in response, *t*(61) = -2.8, *p* = 0.005. When a companion was present, no significant difference in the total amount of information provided to the audiologist was evident. However, a significantly larger proportion of biomedical information was provided. The audiologist made fewer education and counselling utterances to the patient when a companion was present *t*(61) = -2.3, *p* = 0.03.

The RIAS does not record the intended recipient of utterances in a consultation with more than two speakers. However, correlations between data gathering and information giving of speakers have previously been used to suggest the nature of this dynamic (Roter 2000). Audiologist data gathering utterances and companion information giving were not correlated, yet there was a strong significant correlation between audiologist data gathering and patient information giving, Pearson *r* = 0.7, *p* < 0.001. These results suggest that companions perceived few questions as addressed to them, whereas patients perceived and responded to the
majority of questions asked by the audiologist. Taken together, these results indicate that the audiologist asked more questions when a companion was present, but the additional questions were not necessarily addressed to the companion and resulted in less psychosocial information from the patient.
Table 5.6 Changes in communication profile of audiologist and patient, when a companion is present

<table>
<thead>
<tr>
<th>CATEGORY OF UTTERANCE</th>
<th>Audiologist without companion m(SD)</th>
<th>Audiologist with companion m(SD)</th>
<th>F score</th>
<th>Patient without companion M(SD)</th>
<th>Patient with companion. M(SD)</th>
<th>F score</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n=46</td>
<td>n=17</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EDUCATION AND COUNSELLING / INFORMATION GIVING</td>
<td>0.23 (0.11)</td>
<td>0.17 (0.09)</td>
<td>(t(61) = -2.30, p = 0.03)</td>
<td>0.62 (0.15)</td>
<td>0.61 (.15)</td>
<td>(t(61) = 0.42, ns)</td>
</tr>
<tr>
<td>DATA GATHERING / QUESTION ASKING</td>
<td>0.24 (0.11)</td>
<td>0.17 (0.09)</td>
<td>(t(61) = -2.20, p = 0.03)</td>
<td>0.00 (0.01)</td>
<td>0.02 (0.04)</td>
<td>(t(16.4) = -1.60, ns)</td>
</tr>
<tr>
<td>BUILDING A RELATIONSHIP</td>
<td>0.35 (0.10)</td>
<td>0.35 (0.11)</td>
<td>(t(61) = -0.06, ns)</td>
<td>0.30 (0.13)</td>
<td>0.29 (0.14)</td>
<td>(t(61) = 0.01, ns)</td>
</tr>
<tr>
<td>FACILITATION AND PATIENT ACTIVATION / ACTIVATION &amp; ENGAGEMENT</td>
<td>0.37 (0.11)</td>
<td>0.34 (0.10)</td>
<td>(t(61) = 1.10, ns)</td>
<td>0.07 (0.05)</td>
<td>0.08 (0.05)</td>
<td>(t(61) = -0.51, ns)</td>
</tr>
<tr>
<td>TOTAL UTTERANCES</td>
<td>135.00 (60.11)</td>
<td>126.59 (76.78)</td>
<td>(t(61) = -0.46, ns)</td>
<td>136.40 (59.2)</td>
<td>122.40 (87.2)</td>
<td>(t(61) = 0.73, ns)</td>
</tr>
</tbody>
</table>

*Proportion of own utterances was used for this calculation*
5.4.3.3. Communication dynamics
In the history-taking phase of audiology consultations the average ratio of verbal contribution between audiologist and patient (and companion when present) was 1.00 (range = 0.50 to 1.50; SD = 0.24). On average, the audiologist and patient contributed an equal number of utterances. A mean content balance score of 1.10 was seen (range = 0.14 to 2.64); SD = 0.50), suggesting an almost equal balance of utterances relating to biomedical and psychosocial/lifestyle topics. In contrast, the mean communication control score was 0.10 (range = 0.00 to 0.43; SD = 0.10), a result that suggests the audiologist controls 90% of the structure of the history-taking phase.

5.4.3.4. Factors influencing communication dynamics
The second aim of the study was to examine factors associated with the measured communication dynamics. Of the six factors examined, only one variable influenced each outcome measure.

A linear mixed model established that audiologist interruption of the patient talking at the start of a consultation was significantly associated with verbal dominance, $F(45) = 6.0, p = 0.018$. That is, the sooner the audiologist interrupted patient talk at the commencement of the consultation, the more likely the audiologist was to verbally dominate the history-taking phase.

A significant effect on the score of content balance was seen when a companion was present in a consultation, $F(60) = 8.3, p = 0.006$. That is, the balance of content between biomedical and psychosocial/lifestyle was more in favor of biomedical content when a companion was present.

Communication control was significantly affected by whether or not the audiologist asked the patient his or her reason for attending. When asked, a patient was more likely to have control over the history-taking phase, $F(54) = 4.6, p = 0.036$.
5.5. Discussion

The study reported here is the first to examine the nature of verbal communication in the history-taking phase of audiology consultations using a validated communication coding system. In this section, findings are discussed under three headings: the opening structure, information exchange and relationship building. Given the absence of empirical data regarding audiologist communication in history-taking, findings are discussed and interpreted in relation to studies of consultations in other areas of healthcare.

5.5.1. Opening structure of history-taking phase

In this study, audiologists interrupted their patients’ initial talk in 76% of consultations, after 21.3 seconds on average and, when an audiologist interrupted, they were more likely to verbally dominate the remainder of the history-taking phase; these findings are consistent with research in medicine. For example, Beckman and Frankel (1984) reported that medical residents interrupted their patients’ initial talk after just 18 seconds, 77% of the time and Marvel and colleagues (1999) found that physicians prevented patients from completing their talk after 23 seconds on average, in 72% of consultations. Dyche and Swiderski (2005) point out that, when patients are interrupted, the consequences include inefficient information exchange and new concerns raised late in the consultation; late or missed concerns are often psychosocial in nature and, when missed, reinforce a more practitioner-centred, biomedical focussed approach (Marvel et al. 1999). By interrupting their patients’ talk, audiologists may not elicit main concerns, particularly if psychosocial in nature and consequently not satisfactorily address patients’ needs. It is difficult to understand the reason for such interruptions, given that audiological rehabilitation consultations appear to be much longer in duration than medical consultations reported in RIAS studies; yet patients are interrupted after a similar amount of time.
Another important aspect of the opening structure of history-taking is how a patient’s main concern and reason for attendance are solicited (Dyche & Swiderski 2005). In the current study, 62% of audiologists’ initial probing questions were closed-ended in nature. A further 14% of audiologists’ initial questions were open-ended, but assumed prior understanding of their patients’ reason for attendance or main concern (e.g., “what is the issue with your hearing?”); therefore, these questions were not broadly soliciting patients’ concerns. Additionally, when an audiologist solicited the patient’s reason for attendance with an open-ended question, they were less likely to control the structure of the remainder of the history. Balancing power and control is an important dimension of patient-centred communication (Mead & Bower 2000a) and an imbalance of power is associated with reduced patient satisfaction (Roter et al. 1997). Contrasting results are seen in medicine, where Marvel and colleagues (1999) found that doctors opened the consultation with closed-ended questions only 28% of the time. Closed-ended questions at the start of a consultation can lead to an incomplete expression of a patient’s reason for attendance (Dyche & Swiderski 2005), whereas open-ended questions allow efficient solicitation of patients’ concerns, facilitation of patients’ biopsychosocial involvement and development of rapport (Frankel & Stein 1999; Robinson & Heritage 2006). Perhaps audiologists in the present study assumed they knew each patient’s reason for attendance given the specific type of consultation filmed; however, given recent reports on patients’ varied beliefs and expectations when seeking help for hearing (Wänström et al. 2014), the importance of asking an open-ended question to explore patient-specific concerns requires further investigation.

5.5.2. Information exchange

The patient-audiologist information exchange is discussed in terms of the proportion and type of questions audiologists ask (data gathering), the content of information exchanged and the influence of a companion.
The audiologist asked, on average, 97% of all questions throughout the history-taking phase and 86% of questions asked by audiologists were closed-ended in nature. Used throughout a history, closed-ended questions can limit a patient’s ability to expand on concerns (Roter & Frankel 1992) and can be perceived by patients as controlling (Roter & Hall 2004). Therefore, despite the importance of closed-ended questions in medical interviewing, open-ended questions are important throughout the history and are considered more patient-centred (Roter & Hall 2004). The predominance of audiologist closed-ended questions is reflected in two of the communication dynamic measures. The control score (a ratio of who is controlling the agenda by asking questions) suggests audiologists controlled 90% of the agenda and the patient, 10% and the verbal dominance score revealed that for every utterance a patient made, the audiologist made 1.1. While it is expected that practitioners will be responsible for a larger proportion of data gathering compared to patients’ question asking (Cavaco & Roter 2010), greater levels of patient control has been reported in medical consultations (e.g., Roter et al. 1997) compared to the levels observed in this study. In addition, this ratio of verbal dominance is unexpected in a history-taking phase where a patient might provide more utterances than an audiologist. Previous research reports that when a patient was more verbally dominant they tended to have greater understanding, confidence and coping ability after the consultation; and consultations where doctors were verbally dominant were associated with lower patient enablement scores (Pawlikowska et al. 2012). While authors have noted that this measure of verbal dominance is crude and does not take into account the nuances of setting an agenda within a consultation (Neal et al. 2006), in this instance it does suggest that history-taking is led by the audiologist’s agenda of questions.

Over half of the questions asked by audiologists were biomedical in nature (e.g., “Have you ever had a middle ear infection?”). In response, patients and companions gave almost equal amounts of lifestyle information as they did biomedical information. This balance of biomedical and lifestyle/psychosocial content of questions and information giving is reflected in the score of content balance (1.1 means that for every 1 biomedical utterance from any speaker, there
Consultations where this score is $>1$ have been associated with greater patient enablement and satisfaction (Paasche-Orlow & Roter 2003; Pawlikowska et al. 2012). While a range of scores from various medical settings has been published, researchers argue that context needs to be considered when deciding whether the ‘balance’ is appropriate. For example, scores between 1.0 and 2.4 were reported in three primary care studies (Cooper et al. 2003; Helitzer et al. 2001; Paasche-Orlow & Roter 2003); whereas a much lower score of 0.4 was reported in emergency medicine where medical history was of primary importance (McCarthy et al. 2013). In rehabilitative audiology, it is accepted that hearing loss is experienced functionally as a communication disability (e.g., “I don’t hear the others well when I’m on the golf course”) and it might therefore have been expected that lifestyle issues would dominate the history-taking phase (Kramer et al. 2002). This, however, was not evident in the consultations recorded in this study.

Furthermore, in the presence of a companion, patients gave proportionately fewer psychosocial/lifestyle utterances and audiologists asked fewer questions pertaining to psychosocial/lifestyle topics. Similarities can be drawn with findings of Wolff and Roter (2011) whose study looked at communication in mental health consultations with older adults and companions. These authors suggested that if patients felt embarrassment or shame surrounding their condition, the presence of a companion caused a reduction in psychosocial exchange between practitioner and patient. In contrast, Luterman (2008) indicated that, while not preferable, some audiologists undertake behaviours (such as abstaining from asking psychosocial questions) to avoid a potentially emotional or tense situation. In either case, the reduction in discussion of lifestyle issues when a companion attended the consultation in the present study is of note, as it is known that hearing impairment affects the lifestyle and psychosocial function of both the person with a hearing loss and his or her family members (Scarinci et al. 2009). This behaviour therefore poses a potential barrier to patient and companion outcomes and thus, there is an imperative to investigate further. If it is the case that audiologists feel uncomfortable delving into lifestyle and psychosocial issues
with couples or families, then consideration should be given to improving audiologists’ education regarding family-centred practices and counselling skills.

5.5.3. Relationship building

Roter and Hall (2006) recommend that the extent of relationship building between patient and practitioner can be evidenced by combining two RIAS categories: 1) building a relationship and 2) facilitation and patient activation (see Tables 5.3 and 5.4). The two main findings about relationship building in this study are the predominance of the proportion of utterances by audiologists, patients and companions within these two RIAS categories and the lack of emotional exchange observed in the history-taking phase.

Overall, a large proportion of utterances by each speaker were categorised as building a relationship and/or facilitation and patient activation. Consequently, if communication profile categories are observed without considering the codes contained therein, audiologists appear to show good relationship building skills. This is a common finding across various health professions (Bensing et al. 2005; McCarthy et al. 2013; Paasche-Orlow & Roter 2003); however, researchers have cautioned against the sole use of RIAS categories to define the quality of the relationship built between patient and practitioner (Gilbert & Hayes 2009). It is argued that some utterances classified into these categories are difficult to interpret and may not reflect skill in relationship building (Gilbert & Hayes 2009). For example, the ‘building a relationship’ category can be inflated by “agreements”, which, according to Roter, are simply an acknowledgment of receipt of information. Likewise, the ‘facilitation and patient activation’ category can be inflated by “back channels” (e.g. “yeah [I'm listening]” or “right [go on]”) and utterances related to procedure such as “transitions” (e.g. “[ok], and...[next question]”). Similar proportions of utterances in these categories are echoed elsewhere in medical contexts (Castillo et al. 2012; Zaleta & Carpenter 2010) and, in some cases, these codes are excluded from analyses for these reasons (Gilbert & Hayes 2009). Consequently, in this study, the authors place greater emphasis on
the occurrence of other types of talk easily identifiable as relating to relationship building, such as emotional talk rather than “agreements” or “back channels”.

Emotionally-focussed communication is an important aspect of building the patient-practitioner relationship. While almost half of the questions asked by audiologists were classified as psychosocial/lifestyle, few related to psychosocial issues specifically and fewer evidenced emotional engagement such as empathic responses. This was true despite patients’ attempts to engage in affective talk. The most common affective patient utterance was “shows concern” (e.g., “I’m worried I’ll end up as deaf as my mother”), suggesting that even early in consultations, patients displayed some hesitance or negativity. Eide et al. (2004) points out that direct engagement with patients’ feelings and emotions is important in building a trusting relationship; others report that emotional engagement assists practitioners assess patient readiness for change (Britt et al. 2004) and has been associated with higher patient self-efficacy, adherence to treatment and satisfaction (Stewart 1995; Zachariae et al. 2003). Despite its importance, Hall and colleagues (1999) found that, in medical contexts, practitioners tended to have difficulty identifying patients’ emotional cues. The results of this study suggest that there is a lack of verbal emotional engagement between audiologists and patients in audiological rehabilitation history-taking. Further examination of patients’ verbal and nonverbal displays of emotion and audiologists’ responsiveness using qualitative techniques may provide insight into optimal emotional engagement, particularly as many of the associated patient outcomes (e.g., satisfaction, trust and self-efficacy) are known to be predictive of treatment uptake in the context of audiological rehabilitation (English & Kasewurm 2012; Knudsen et al. 2010; Laplante-Lévesque et al. 2012; Meyer et al. 2014).

5.5.4. Pattern of communication as described by Roter et al. (1997)

Overall, the pattern of communication observed in this study was comparable to that described by Roter et al. (1997) in the context of primary care as ‘expanded biomedical’. The behaviours that define such a communication pattern are: high
frequency of closed-ended question asking by the practitioner; high frequency of information given by the patient; equal levels of biomedical and psychosocial/lifestyle exchange; high practitioner control score and moderately high practitioner verbal dominance. Additionally, utterances considered important for relationship building were primarily lacking in affect and added to the structure of the consultation, rather than to emotional engagement. This pattern was described as essentially paternalistic communication which exemplifies “a transition to a more egalitarian model that more fully integrates the patients perspective” (Roter et al. 1997 p.355), suggesting that the audiological rehabilitation history-taking observed in this study has some way to go before it could be considered patient-centred.

5.5.5. Study limitations and future directions

This study was the first to adapt the RIAS for use in audiological consultations and provides novel insight into the communication patterns of audiologists, patients and companions in the history-taking phase of initial audiological rehabilitation consultations. The finding of limited patient-centred communication behaviours in history-taking suggests the need for clinician education and advocacy for patient-centred approaches within organisations. Clinically, audiologists should endeavour to begin the consultation with an open-ended question, follow the patient’s lead as much as is practicable and ask about and respond to psychosocial topics, particularly in the presence of a companion. Further research is necessary to explore the nature of communication in other phases of the consultation and to understand the implications of the communication patterns in the history-taking phase for the overall management of the patient.

The current study is not without limitations. The participant group included in this study may limit the generalizability of these results to all audiological consultations. Examination of subsequent rehabilitation consultations (e.g., follow-up appointment) or consultations with patients, who have moderate or greater audiometric thresholds, are from different age groups or cultural backgrounds, or
present with a range of English language skills is needed as they may contain significantly different communication patterns. Moreover, sampling bias of audiologists may have also occurred. Given the intrusive nature of participation, many potential participants may have been uncomfortable with being filmed. While both audiologists and patients were blind to the specific aims of the study, participants knew they were being filmed, and it was possible that audiologists who felt comfortable with their communication abilities agreed to participate. The notion of being filmed may play a part in the nature of communication in this context. While there is little evidence to suggest that video recording influences the behaviour of health practitioners or their patients (Coleman 2000; Pringle & Stewart-Evans 1990), some audiologists commented that while being filmed they behaved how they thought was the ‘right’ way. Nonetheless, given the lack of previous analysis in audiology using this methodology, these findings represent a novel first look at the nature of communication in the history-taking phase of audiological rehabilitation consultations.

The influence of communication in the history-taking phase on patient outcomes was not addressed in this study. Measures of outcomes such as satisfaction, recall of information, and treatment adherence were not available, and therefore no conclusions can be drawn about associations between communication behaviours and outcomes. A key question therefore that could be addressed in future research is: What is the influence of communication on consultation satisfaction and patient benefit? In the process of answering this question, future researchers should consider documenting more information surrounding patient education levels, health literacy, and socio-economic status; and, from an audiologist perspective, investigation of the influence of organisational factors such as documentation requirements, patient volume, and commercial pressures are needed. Lastly, further research could focus on nonverbal communication or investigate the discourse between patient and practitioner in more detail.

There are several limitations that relate specifically to the RIAS. First, it is possible that a discrepancy exists between measured patient-centredness and a patient’s
perception. Second, this method focuses on a single consultation per patient and therefore risks missing aspects of patient-centredness that are implicit or develop over time. Third, measures of communication dynamics assume an a priori expectation that, for example, an equal distribution of utterance or balanced psychosocial/biomedical talk is in fact patient-centred at any given consultation phase in any context. Fourth, given that the RIAS does not document the intended recipient of utterances, this system (and most quantitative interaction analysis systems) is not sensitive to the complexities and sequences of communication; thus, a subsequent qualitative analysis of this data has been conducted to obtain greater insight into the micro-processes of audiologist-patient/companion communication (see Ekberg et al. 2014 a; b; c).

5.5.6. Conclusions

This study collected data from 63 initial audiological rehabilitation consultations and focussed on the history-taking phase. Audiologists tended to control the form of the history. While the questions audiologists asked were balanced in topic (i.e., biomedical and psychosocial), the form of the questions (typically closed-ended) resulted in the audiologist talking as much as the patient, and much more than the companion when they were present. Audiologists attempted to create a relationship with their patients; however the coding used in this study revealed little verbal emotional relationship building. The most pertinent finding of this research is that results are not in line with patient-centred communication principles. Further research and discussion regarding strategies to optimise patient-centred practice in audiological consultations is warranted.

5.6. Acknowledgements

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5.7. References


Chapter Six
CHAPTER 6

The nature of communication throughout diagnosis and management planning in initial audiological rehabilitation consultations


6.1. Abstract

6.1.1. Background

Effective practitioner-patient communication throughout diagnosis and management planning positively influences patient outcomes. A patient-centred approach whereby patient involvement in decision-making is facilitated, a therapeutic relationship is developed and information is bilaterally exchanged in an appropriate manner, leads to improved patient satisfaction, adherence to treatment and self-management. Despite this knowledge, little is known about the nature of audiologist-patient communication throughout diagnosis and management planning.
6.1.2. Purpose

This research aimed to explore verbal communication between audiologists and patients/companions throughout diagnosis and management planning in initial audiology consultations. Specifically, this study aimed to describe the nature and dynamics of communication by examining the number, proportion and type of verbal utterances by all speakers (audiologist, patient and companion when present). In addition, this study aimed to investigate the influence of audiologist, patient and consultation factors, such as verbal dominance, content balance and communication control, on the dynamics of communication.

6.1.3. Study sample

Sixty-two initial audiological rehabilitation consultations (involving 26 different audiologists) were filmed and analysed using the Roter Interaction Analysis System (RIAS). All patients were over the age of 55 and a companion was present in 17 consultations.

6.1.4. Data collection and analysis

This study focussed solely on the communication relating to diagnosis and management planning (referred to as the “counselling phase”). Diagnosis, recommendations, rehabilitation options and patient decisions were recorded along with the communication profiles and communication dynamics measured using the RIAS. Associations between communication dynamics (content balance, communication control and verbal dominance) and eight variables were evaluated with Linear Mixed Model methods.

6.1.5. Results

The mean length of time for diagnosis and management planning was 29.0 minutes (range 2.2 to 78.5). Communication profiles revealed that patient-centred communication was infrequently observed. First, opportunities to build a relationship were missed, such that patients’ psychosocial concerns were rarely
addressed and patients/companions showed little involvement in management planning. Second, amount of talk was asymmetrical and the majority of audiologists’ education and counselling utterances related to hearing aids; yet, only 56% of patients decided to obtain hearing aids at the conclusion of the consultation. Hearing aids were recommended in 83% of consultations where a hearing loss was diagnosed and alternative options were rarely provided. Thus, shared decision-making rarely occurred and audiologists often diagnosed a hearing loss and recommended hearing aids without patient involvement. In addition, when a greater proportion of time was dedicated to diagnosis and management planning, patients had greater input and control by asking more questions and requesting further information.

6.1.6. Conclusions

Patient-centred communication was rarely observed in the 62 consultations. Thus, while not measured in this study, patient outcomes are likely to be affected. Future research should examine the influence of audiologist communication on outcomes and encourage a shift towards patient-centred audiologic rehabilitation.


6.2. Introduction

In the face of persistent low rates of hearing aid uptake and use (Davis et al., 2007), focus has shifted toward the human dynamics of audiological rehabilitation (English, 2005; Greer Clark, 2007; Gagné & Jennings, 2011; Hickson, 2012; Laplante-Lévesque et al., 2012; Meyer & Hickson, 2012; Grenness et al., 2014b). While there is evidence to suggest that audiology patients value patient-centred skills in their audiologists (Laplante-Lévesque et al., 2010; Poost-Foroosh et al., 2011; Grenness et al., 2014a) and that audiologists themselves value patient-centred behaviours (Laplante-Lévesque et al., 2014), there exists a paucity of research examining consultations in audiological rehabilitation and the communication occurring therein (Knudsen et al., 2010; Saunders & Forsline, 2012; Trychin, 2012). Extensive research in other areas of healthcare associated with chronic health conditions suggests that patient-centred practitioner-patient communication positively influences patients’ physical and emotional health outcomes (Stewart, 1995; Little et al., 2001; DiMatteo et al., 2002; Roter & Hall, 2004). In a comprehensive review of randomised control trials and analytic studies of practitioner-patient communication, Stewart (1995) reported that, in 75% of studies, a positive association between quality of communication and patient health outcomes was observed for patients of all ages seeing medical practitioners in both public and private contexts. For example, the effectiveness of communication occurring throughout the history and diagnosis and management planning influenced outcomes such as emotional health, symptom resolution, physical function and treatment adherence (Stewart, 1995). Audiologist-patient communication is therefore an important area of investigation.

For practitioner-patient communication to be considered patient-centred, a number of specific skills are required across three domains: relationship building, information exchange and decision-making (Ong et al., 1995). Ideally, to build a trusting relationship, the amount of practitioner and patient talk should be evenly distributed; practitioners should encourage patient input by asking their opinion and permission and by maximising listening time (Roter et al., 1997). Moreover,
patients’ psychosocial concerns and fears relating to diagnosis or rehabilitation should be addressed with appropriate empathy (Stewart, 1995; Hall et al., 1999; Mead & Bower, 2000). The content of information exchanged needs to be meaningful, functional, of appropriate complexity and balanced between biomedical topics and psychosocial topics (Roter et al., 1997). Importantly, decisions are best made by listening, inviting collaboration (e.g., “what do you think about this idea?”) (Mead & Bower, 2000) and by providing options in a nonjudgmental manner (Elwyn et al., 2012).

Unfortunately, problems with practitioner-patient communication are commonly reported (Levinson et al., 1997; Roter et al., 1997) and often occur during the phase of the appointment that focuses on diagnosis and management planning. Breakdown in communication can occur through misunderstanding what is said or spending insufficient time on the topic; such problems can result in persistent patient fear or denial (Stewart, 1995). Another reason is that patients may not trust practitioners, resulting in patients refusing rehabilitation, particularly when costs are involved (Piette et al., 2005) or increased likelihood of malpractice claims (Levinson et al., 1997). A final reason may be paternalistic decision-making where options are not provided and/or the patient’s input is not sought, valued or listened to leading to reduced patient adherence and increased likelihood of seeking a second opinion (Charles et al., 1999). The frequency of communication breakdown has motivated an abundance of research examining medical practitioner communication and interventions to improve communication skills (Lewin et al., 2001; Wouda & Van De Wiel, 2013).

In contrast, just a handful of studies investigating audiologist-patient communication exist; however, they share the conclusion that communication breakdown often inadvertently occurs. For example, information exchange was examined in both adult routine hearing aid consultations (Nair & Cienkowski, 2010) and paediatric diagnostic consultations (Watermeyer et al., 2012). In both studies, audiologist communication was found to be too complex and focussed on technical topics.
Recently, we explored verbal markings of a therapeutic relationship and information exchange in the history-taking phase of initial adult audiological rehabilitation consultations (Grenness et al., in press). Findings of this study agreed with previous conclusions that audiologists’ information exchange was technically focussed. Moreover, the structure the audiologist enforced via a predominance of closed-ended questions meant many relationship building opportunities were missed. These findings were explored further by Ekberg et al (2014 a) whose use of Conversation Analysis explored instances where adult patients expressed concern about hearing aids in initial rehabilitation consultations. In response, audiologists either failed to acknowledge this concern, or responded with further information rather than empathy. Consequently, Ekberg found patients were forced to repeat concerns, which resulted in reduced efficiency and often ultimately, refusal of the audiologist’s recommendation. In summary, the insight afforded by previous research suggests there is an opportunity to improve audiologist communication; however, none of these studies focussed on the communication with adult clients relating to diagnosis and management planning that typically occurs after their assessment.

In other audiology literature, researchers report the nature of patients’ preferences for communication with audiologists. Laplante-Lévesque et al (2010) interviewed 22 first-time patients about shared decision-making and reported that adults valued trust in the audiologist and wanted the opportunity to share their story with the clinician. Poost-Foroosh et al (2011) sought the perspectives of both patients and audiologists regarding important communicative behaviours for hearing aid uptake. Using a mixed-methods approach, these authors reported eight important concepts, four of which related specifically to diagnosis and management planning: i.e., imposing undue pressure, effective information regarding hearing devices, supporting shared decision-making, and acknowledging readiness. A further study by Grenness et al (2014a) in which ten older adults who owned hearing aids were interviewed about their perspective on the definition of patient-centred audiological rehabilitation, reported an operationalised model wherein care was individualised. Alongside this, a therapeutic relationship based
on trust was required and participants valued being informed and involved in decision-making.

In summary, rehabilitative audiology studies of communication have focused on the history-taking phase and on patient preferences. The present study explored verbal communication between audiologists and patients/companions throughout diagnosis and management planning in the initial audiology consultations. Specifically, this study aimed to describe the nature and dynamics of communication by examining the number, proportion and type of verbal utterances by all speakers (audiologist, patient and companion when present) using the Roter Interaction Analysis System (RIAS). In addition, the study aimed to investigate the influence of audiologist, patient and consultation factors such as verbal dominance, content balance and communication control, on the dynamics of communication.

6.3. Materials and method

The study reported here is part of a group of studies stemming from one large data set of 63 filmed consultations between audiologists, patients and companions. Further results pertaining to this data set have been reported (Ekberg, et al., 2014 a; b; b; Grenness et al., in press).

6.3.1. Participants

Audiologists working in adult audiological rehabilitation across Australia were invited to participate. Recruitment sought to capture both consultations that were privately funded and those funded under the Australian Federal Government Hearing Services scheme. The Office of Hearing Services scheme provides a subsidy for hearing services (including hearing aids, assistive devices and rehabilitation education) to eligible Australians. Eligibility is extended to children to the age of 26 years, pensioned adults (aged or disability), veterans and their family and aboriginal or Torres Straight Islanders. Eligible candidates have the option of financially contributing to hearing aids to obtain higher-level technology.
Each audiologist was asked to recruit up to four patients over the age of 55 who was booked in for an initial consultation. Participation involved audio-visual filming of the initial consultation according to normal practice of the participating clinic (i.e., companion involved, according to usual practice, if present). Sixty-two of 84 consultations were included in the study; the remainder was excluded due to data quality issues, language other than English spoken or consultation format (e.g., not initial consultation, student audiologist present).

6.3.2. Procedure

This study was conducted under the ethical oversight of the University of Queensland Behavioural and Social Sciences Ethical Review Committee (2011000857), Australian Hearing HREC (AHHREC2012-13) and the Royal Victorian Eye and Ear Hospital Human Research Ethics Committee (10/964H), and adhered to the principles of the National Health and Medical Research Statement on Research Involving Human Subjects.

Audiologists were recruited via advertisements through the professional body and professional networks. All participants (audiologists and patients) provided written consent and completed a basic demographic questionnaire prior to, or, on the day of filming. All participants were told that the researchers would be observing the interaction, but were not informed of the specific study aims.

The researcher attended the clinic on the day of the consultation to set up the filming equipment, but was not present during the consultation. Filming was conducted using an Apple iPhone 4 or iPod touch on a 15cm tripod placed in a discrete position within the consultation room.

6.3.3. Coding of data

All verbal communication within the consultation was coded using the RIAS directly from the digital video recording by two trained coders who were also audiologists. The RIAS is a method of coding practitioner-patient communication
and is widely used to quantify healthcare interactions (Roter & Larson, 2002). The authors developed an audiology-modified version of the RIAS manual for the purpose of this study. Each audiologist, patient and companion utterance was coded according to the RIAS manual (Roter & Larson, 2002) in which there are 41 available codes: all but 1 code can be used for practitioner utterances (i.e., asks for service) and all but 6 codes can be for patient utterances (i.e., back-channel, transition, open-ended question-medical, therapeutic regimen, lifestyle and psychosocial). Codes were grouped into four categories, consistent with previous publications using this coding system. A summary of these categories with descriptions using examples from the audiology consultations is reported in Table 5.1, (Chapter 5) During the process of analysis, the coders documented the phases of each consultation in line with Carter et al’s (1982) definition (opening, history, exam, counselling and closing). For this study the phase documented as ‘counselling’ was included and contains diagnosis and management planning wherein either decision-making or deferment of decision-making occurs. Utterances were typically defined as ‘counselling’ when the audiologist had completed audiometric testing and commenced explanation of results until ‘closing’, which consisted of social talk such as, “we’ll see you next time”. In some cases ‘counselling’ may have occurred before or in between examinations or, if a patient attended with test results, ‘counselling’ may have commenced early in the consultation.

Consultations were timed in minutes: total consultation length was calculated from the moment the audiologist and patient/companion entered the clinic room until either the patient/companion or all parties left the room. The coding software provides a timestamp each time the coder documents a code. The counselling phase duration was calculated by combining the total time documented as the ‘counselling phase’. Within this phase the duration of topics specifically relevant to this consultation were calculated:

- Explanation of test results,
• Decision-making processes, utterances relating to decision-making (e.g., “would you be interested in this hearing aid over another hearing aid?”), and

• Financial matters, utterances that related to the cost of rehabilitation options, funding arrangements and warranty (these utterances are coded as lifestyle according to the RIAS manual).

In addition to RIAS coding and timing, the following consultation details were documented by both coders while viewing the videos:

• Audiological diagnosis,

• Rehabilitation options discussed,

• Audiologist recommendations, and

• Patient decisions.

6.3.4. Data analysis

Statistical data analysis was conducted using SPSS version 21 (SPSS Inc, Chicago, Ill). Analysis is described in two subsections: consultation characteristics and RIAS findings. Within RIAS findings four subsections cover coding reliability, communication profiles, measures of communication dynamics and factors influencing communication dynamics.

6.3.4.1. Consultation characteristics

Frequency and proportion of behaviours were documented and are described under the headings: explanation of results, decision-making, options and recommendations and decisions.

6.3.4.2. RIAS findings

6.3.4.2.1. Coding reliability

To assess coding reliability of the RIAS, Intraclass Correlation Coefficients (ICC) were calculated using a 95% confidence interval (CI). For intra-rater reliability
both coders re-coded a 10% random sample of consultations. The intra-rater ICC was 0.91 (95% CI of 0.79 to 0.97), \( p < 0.001 \) for audiologist utterances and 0.99 (95% CI of 0.99 to 1.00), \( p < 0.001 \) for combined patient and companion utterances. In addition, to assess inter-rater reliability a 16% sample was double-coded and ICCs were also calculated. The inter-rater ICC was 0.97 (95% CI 0.05 to 0.99), \( p < 0.001 \) for audiologist utterances and 0.96 (95% CI 0.92 to 1.0), \( p < 0.001 \) for combined patient and companion utterances. Therefore excellent reliability was achieved. Similarly high RIAS reliability has been reported in other studies (Roter & Larson, 2002; Vail et al., 2011).

6.3.4.2.2. Communication profiles
Mean total utterances, range and proportion of utterances for each of the four RIAS category were calculated. Differences between the proportions of utterances per category for each person were investigated using one way between subjects Analysis of Variance tests (ANOVAS), followed by post hoc analysis of significant results with Bonferonni corrections. Differences in audiologist and patient communication profiles when a companion was present versus not present were examined using independent \( t \)-tests. Assumptions of normality, homogeneity and outliers were examined via Shapiro Wilk’s test, Levene’s test for equality of variances and box plots, respectively.

6.3.4.2.3. Measures of communication dynamics
Studies using the RIAS system commonly report at least one of three measures of communication dynamic (Roter et al., 1997; Cooper et al., 2003; Pawlikowska et al., 2012; McCarthy et al., 2013): verbal dominance, content balance and communication control. Verbal dominance is a ratio of the number of utterances by the audiologist compared to the patient and companion, where a ratio > 1:1 suggests the audiologist gave more utterances than the patient and companion’s talk combined and vice versa. Content balance measures the equality of psychosocial and socio-emotional talk compared to biomedical talk between the audiologist and patient/companion. A score equal to 1 suggests an even balance in number of utterances in psychosocial and socioemotional talk compared to
utterances in biomedical talk. According to previous literature, a score > 1 indicates the minimal balance required to be considered ‘patient-centred’ and represents a greater proportion of psychosocial and socioemotional talk compared to biomedical talk (Cooper et al., 2003). Lastly the communication control score documents the balance between audiologist question asking/information giving and patient question asking/information giving. A score < 1 indicates that the audiologist asked more questions, and gave less information than the patient; a score > 1 suggests the majority of information provision originated from the audiologist.

6.3.4.2.4. Factors influencing communication dynamics

Linear Mixed Modelling (LMM) was used to establish the presence and direction of relationships between predictors relating to audiologist, patient and consultation factors and three outcome measures (verbal dominance, content balance and communication control scores). In some instances within the dataset multiple consultations were filmed per audiologist. To allow each consultation to be considered independently, the audiologist was entered as a random effect in the LMM thereby accounting for audiologist variance. Similar methods are commonly reported in RIAS studies (e.g., Wolff et al., 2012) given the challenge of recruiting large numbers of clinicians compared to patients. Eight predictor variables were evaluated as fixed effects. Of the eight variables, four were continuous: audiologist years of clinical experience, patient age, total consultation length, and proportion of consultation length classified as counselling. The remaining four variables were categorical: audiologist gender (male/female), patient gender (male/female), consultation funding source (self funded/government funded), and presence of a companion in the consultation (present/absent).

Shapiro-Wilk’s test for normality was used to explore the distribution of each outcome measure and revealed positively skewed distributions for all three outcomes measures. Additionally, diagnostics of plotted residuals revealed three outliers within the control score measure. Transformations were performed;
however, as significant results were the same with transformed data and with untransformed data, untransformed data are reported in this study.

The bivariate relationship between each variable and outcome were assessed initially using a liberal alpha value of $p < 0.10$ to screen for potential factors before including them in the LMM given the sample size. Two of the eight predictors were significantly related to at least one outcome variable. Proportion of time counselling and audiologist gender (female) were negatively associated with the verbal dominance score; funding source (government) and consultation length was negatively associated with the content balance score; proportion of time counselling and funding source (government) were negatively associated with the communication control score with an alpha value of $p < 0.10$. Each predictor was then analysed with the associated outcome by removing the other variable in a stepwise manner until only those with a $p$ value of $< 0.05$ remained.

### 6.4. Results

#### 6.4.1. Participant characteristics

A total of sixty-two filmed consultations, with 26 different audiologists, met the eligibility criteria and were included in this study (see Table 6.1 for participant and consultation characteristics). Audiologists were recruited from eleven workplaces located in five of eight Australian states and territories. Patients self funded 52% of consultations; the Australian Federal Government, Office of Hearing Services, funded the remainder. In this study, a companion (spouse, adult child or friend) was present in 27% of consultations.

#### 6.4.2. Consultation characteristics

The mean length of diagnosis and management planning (counselling phase) was 29.0 minutes (range 2.2 to 78.5; SD = 18.6). Throughout this consultation phase, audiologists gave on average 420.7 utterances (range 52.0 to 1428.0; SD = 266.0) compared to patients’ 261.2 (range 30.0 to 749.0; SD = 170.3) and companions’
(when present) 111.3 (range 12.0 to 325.0; SD = 97.6). Mean, range and proportion of utterances and their categorisation are displayed in Table 6.2 and 6.3, respectively.

### 6.4.2.1. Explanation of results
An examination (audiometry/immitance/speech-in-noise testing) occurred in 61 consultations, and pure-tone-audiometry was conducted in 60 consultations. Explanation of results took on average 3.9 minutes (range 0.5 to 26.5; SD = 4.1). Of the 62 patients, 60 were diagnosed with a hearing loss and 50 were diagnosed with a hearing loss that the audiologist deemed appropriate for a hearing aid fitting.

### 6.4.2.2. Decision-making
The average total time spent on information exchange relating to decision-making was 20.4 minutes (range 0.2 to 89.5; SD = 16.8). Discussion pertaining to financial matters associated with rehabilitation decision-making took on average 4.7 minutes (range 0.0 to 26.0 minutes; SD = 5.7). Examples of this talk include: “this level of technology is $2,749 for one” or “the OHS voucher entitles you to subsidised hearing devices”. There was no difference between government funded and self funded consultations in the proportion of time spent discussing financial matters; however, proportionately, significantly more time was spent on decision-making in total in self funded consultations ($t(57) = 2.8, p = 0.007$).

### 6.4.2.3. Options and recommendations
Audiologists recommended rehabilitation in 83% of consultations. Of these consultations, hearing aids were recommended to 100% of patients. Alternative rehabilitation options (e.g., hearing assistive technology, group or individual communication classes) were recommended in 8% of consultations. In none of the consultations were alternative options presented alongside hearing aids; rather, options other than hearing aids were discussed if hearing aids were decided against.
6.4.2.4. **Decisions**

At the conclusion of the initial consultation, 56% of patients who were recommended hearing aids decided to obtain hearing aids, 30% of patients told the audiologist they would think about hearing aids, and 14% decided against hearing aids. One of the five patients who were recommended alternative options decided to take up this option.
<table>
<thead>
<tr>
<th>PARTICIPANT CHARACTERISTIC</th>
<th>AUDILOGISTS (n=26)</th>
<th>PATIENTS (n=62)</th>
<th>COMPANIONS (n=17)</th>
<th>CONSULTATIONS (n=62)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender Female/Male</td>
<td>61%/39%</td>
<td>42%/58%</td>
<td>65%/35%</td>
<td></td>
</tr>
<tr>
<td>Experience as audiologist (years) Mean (SD)/Range</td>
<td>11.4 (10.1)/1 - 40</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of consultations filmed per audiologist</td>
<td>15%/38%/38%/8%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender Female/Male</td>
<td>42%/58%</td>
<td>65%/35%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age (years) Mean (SD)/Range</td>
<td>71.6 (8.9)/55 - 93</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender Female/Male</td>
<td>65%/35%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age (years) Mean (SD)/Range</td>
<td>69.4 (8.6)/50 - 82</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relation to patient Spouse/Adult child/Friend</td>
<td>15%/1%/1%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Length (mins) Mean (SD)/Range</td>
<td>57.8 (20.3)/27.3 – 111.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Length of counselling phase Mean (SD)/Range</td>
<td>29.0 (18.6)/2.2 – 78.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Funding source Self funded/Government funded</td>
<td>52%/48%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender match (Patient : Audiologist) Female : female/Male : male/Male : female</td>
<td>29%/16%/30%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hearing loss according to description given to patient Normal hearing/Mild/Mild to moderate/Moderate to severe/Severe to profound</td>
<td>3%/32%/43%/19%/2%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
6.4.3. RIAS findings

6.4.3.1. Communication profiles

Mean total utterances, range and proportion of utterances for each of the four RIAS categories are shown in Table 6.2 for audiologist talk and Table 6.3 for patient and companion talk. Almost half of audiologist utterances throughout the diagnosis and management planning phase were classified as education and counselling in nature (48%). Eighty-three percent of audiologist education and counselling was biomedical in content (e.g., “this type of hearing loss is permanent and most likely the result of ageing”). Seventy-one percent of the information given was affect neutral (e.g., “there are two main styles of hearing aids”); the remainder of information was persuasive in nature (e.g., “You’ll notice a big difference in this hearing aid because of the speech enhancement; it’s worth the extra cost”). The second most common category of utterance was building a relationship (26%), primarily made up of positive talk (agreements), and followed by emotional talk in the form of giving reassurance. Audiologists spent 22% of their utterances on facilitation and patient activation, consisting mostly of procedural utterances such as transitions and orientations (e.g., “and [transition]... the other thing you should know [orientation]”). The smallest category of utterances was data gathering (4%) wherein closed-ended psychosocial/lifestyle questions were most frequent.
Table 6.2 Profile of communication categories used by audiologists in the counselling phase

<table>
<thead>
<tr>
<th>CATEGORY OF UTTERANCES</th>
<th>AUDIOLOGIST TALK (N = 62)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
</tr>
<tr>
<td>TOTAL UTTERANCES</td>
<td>420.7</td>
</tr>
<tr>
<td>EDUCATION AND COUNSELLING</td>
<td>200.8</td>
</tr>
<tr>
<td>Biomedical topics</td>
<td>167.0</td>
</tr>
<tr>
<td>Therapeutic regimen</td>
<td>72.2</td>
</tr>
<tr>
<td>Medical condition</td>
<td>44.0</td>
</tr>
<tr>
<td>Counselling</td>
<td>48.8</td>
</tr>
<tr>
<td>Other</td>
<td>2.4</td>
</tr>
<tr>
<td>Psychosocial topics</td>
<td>32.9</td>
</tr>
<tr>
<td>Lifestyle</td>
<td>24.0</td>
</tr>
<tr>
<td>Psychosocial</td>
<td>0.9</td>
</tr>
<tr>
<td>Counselling</td>
<td>7.9</td>
</tr>
<tr>
<td>DATA GATHERING</td>
<td>17.4</td>
</tr>
<tr>
<td>Biomedical questions</td>
<td>6.0</td>
</tr>
<tr>
<td>Closed-ended</td>
<td>4.6</td>
</tr>
<tr>
<td>Open-ended</td>
<td>1.3</td>
</tr>
<tr>
<td>Psychosocial questions</td>
<td>11.5</td>
</tr>
<tr>
<td>Closed-ended</td>
<td>9.2</td>
</tr>
<tr>
<td>Open-ended</td>
<td>2.2</td>
</tr>
<tr>
<td>Bid for repetition</td>
<td>0.1</td>
</tr>
<tr>
<td>BUILDING A RELATIONSHIP</td>
<td>109.5</td>
</tr>
<tr>
<td>Social talk</td>
<td>11.6</td>
</tr>
<tr>
<td>Positive talk</td>
<td>61.9</td>
</tr>
<tr>
<td>Agreements</td>
<td>49.0</td>
</tr>
<tr>
<td>Approvals</td>
<td>3.0</td>
</tr>
<tr>
<td>Compliments</td>
<td>0.3</td>
</tr>
<tr>
<td>Laughter/jokes</td>
<td>9.7</td>
</tr>
<tr>
<td>Negative talk</td>
<td>2.0</td>
</tr>
<tr>
<td>Criticisms</td>
<td>0.9</td>
</tr>
<tr>
<td>Disagreements</td>
<td>1.1</td>
</tr>
<tr>
<td>Emotional talk</td>
<td>34.0</td>
</tr>
<tr>
<td>----------------</td>
<td>------</td>
</tr>
<tr>
<td>Empathy</td>
<td>0.2</td>
</tr>
<tr>
<td>Concern</td>
<td>6.2</td>
</tr>
<tr>
<td>Reassurance</td>
<td>22.2</td>
</tr>
<tr>
<td>Partnership</td>
<td>1.4</td>
</tr>
<tr>
<td>Self-disclosure</td>
<td>2.6</td>
</tr>
<tr>
<td>Legitimising</td>
<td>1.5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FACILITATION AND PATIENT ACTIVATION</th>
<th>91.9</th>
<th>8-314</th>
<th>22%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participatory facilitators</td>
<td>32.0</td>
<td>0-149</td>
<td>8%</td>
</tr>
<tr>
<td>Back channels</td>
<td>13.9</td>
<td>0-75</td>
<td>3%</td>
</tr>
<tr>
<td>Checks</td>
<td>8.3</td>
<td>0-32</td>
<td>2%</td>
</tr>
<tr>
<td>Asks for opinion</td>
<td>4.9</td>
<td>0-32</td>
<td>1%</td>
</tr>
<tr>
<td>Asks if understood</td>
<td>4.1</td>
<td>0-33</td>
<td>1%</td>
</tr>
<tr>
<td>Asks for reassurance</td>
<td>0.9</td>
<td>0-10</td>
<td>0%</td>
</tr>
<tr>
<td>Asks for permission</td>
<td>0.0</td>
<td>0-3</td>
<td>0%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Procedural talk</th>
<th>59.9</th>
<th>4-191</th>
<th>14%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transitions</td>
<td>18.2</td>
<td>2-163</td>
<td>10%</td>
</tr>
<tr>
<td>Orientations</td>
<td>41.7</td>
<td>1-61</td>
<td>4%</td>
</tr>
</tbody>
</table>

Proportion calculation: number of speaker utterances in RIAS category/total number of speaker utterances. The percentages shown represent these proportions.
Table 6.3 Profile of communication categories used by patient and companion in the counselling phase

<table>
<thead>
<tr>
<th>CATEGORY OF UTTERANCE</th>
<th>PATIENT TALK (N = 62)</th>
<th>COMPANION TALK (n = 17)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>Range</td>
</tr>
<tr>
<td>TOTAL UTTERANCES</td>
<td>261.2</td>
<td>30-749</td>
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<tr>
<td>INFORMATION GIVING</td>
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<td></td>
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<tr>
<td>Biomedical topics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Therapeutic regimen</td>
<td>13.0</td>
<td>0-42</td>
</tr>
<tr>
<td>Medical condition</td>
<td>9.8</td>
<td>0-39</td>
</tr>
<tr>
<td>Other</td>
<td>1.8</td>
<td>0-12</td>
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<tr>
<td>Psychosocial topics</td>
<td>39.9</td>
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<td>Lifestyle</td>
<td>32.6</td>
<td>0-179</td>
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<td>Psychosocial</td>
<td>6.9</td>
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<tr>
<td>QUESTION ASKING</td>
<td>16.3</td>
<td>0-98</td>
</tr>
<tr>
<td>Biomedical questions</td>
<td>13.6</td>
<td>0-97</td>
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<tr>
<td>Therapeutic</td>
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<td>0-79</td>
</tr>
<tr>
<td>Medical</td>
<td>1.4</td>
<td>0-11</td>
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<tr>
<td>Other</td>
<td>0.8</td>
<td>0-9</td>
</tr>
<tr>
<td>Psychosocial questions</td>
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<td>0-20</td>
</tr>
<tr>
<td>Psychosocial</td>
<td>2.6</td>
<td>0-2</td>
</tr>
<tr>
<td>Lifestyle</td>
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<td>0-18</td>
</tr>
<tr>
<td>BUILDING A RELATIONSHIP</td>
<td>157.0</td>
<td>16-419</td>
</tr>
<tr>
<td>Social talk</td>
<td>13.3</td>
<td>0-93</td>
</tr>
<tr>
<td>Positive talk</td>
<td>120.6</td>
<td>8-401</td>
</tr>
<tr>
<td>Agreements</td>
<td>116.5</td>
<td>8-396</td>
</tr>
<tr>
<td>Approvals</td>
<td>2.1</td>
<td>0-12</td>
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<td>Compliments</td>
<td>0.8</td>
<td>0-8</td>
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<tr>
<td>Laughter/jokes</td>
<td>1.3</td>
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</tr>
<tr>
<td>Negative talk</td>
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<td>0-48</td>
</tr>
<tr>
<td>Criticisms</td>
<td>5.4</td>
<td>0-44</td>
</tr>
<tr>
<td>Disagreements</td>
<td>3.5</td>
<td>0-25</td>
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<tr>
<td>Emotional talk</td>
<td>14.3</td>
<td>0-52</td>
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<td>Empathy</td>
<td>0.0</td>
<td>0-2</td>
</tr>
<tr>
<td>Category</td>
<td>Proportion</td>
<td>Minimum</td>
</tr>
<tr>
<td>-------------------</td>
<td>------------</td>
<td>---------</td>
</tr>
<tr>
<td>Concern</td>
<td>8.4</td>
<td>0-38</td>
</tr>
<tr>
<td>Reassurance</td>
<td>4.7</td>
<td>0-33</td>
</tr>
<tr>
<td>Legitimising</td>
<td>1.1</td>
<td>0-6</td>
</tr>
<tr>
<td><strong>ACTIVATION &amp; ENGAGEMENT</strong></td>
<td><strong>22.7</strong></td>
<td><strong>0-87</strong></td>
</tr>
<tr>
<td>Participatory facilitators</td>
<td><strong>11.6</strong></td>
<td><strong>0-43</strong></td>
</tr>
<tr>
<td>Checks</td>
<td>5.3</td>
<td>0-35</td>
</tr>
<tr>
<td>Ask if understood</td>
<td>1.4</td>
<td>0-15</td>
</tr>
<tr>
<td>Asks for reassurance</td>
<td>4.9</td>
<td>0-23</td>
</tr>
<tr>
<td>Asks for service</td>
<td>0.1</td>
<td>0-4</td>
</tr>
<tr>
<td><strong>Procedural talk</strong></td>
<td><strong>11.0</strong></td>
<td><strong>0-46</strong></td>
</tr>
<tr>
<td>Orientations</td>
<td>0.2</td>
<td>0-3</td>
</tr>
<tr>
<td>Transitions</td>
<td>10.8</td>
<td>0-46</td>
</tr>
</tbody>
</table>

Proportion calculation: number of speaker utterances in RIAS category/total number of speaker utterances. The percentages shown represent these proportions.
The most common category of patient utterances was building a relationship (60%) wherein the agreement utterances were the most common, followed by social talk and emotional talk (e.g., “that’s far too expensive for me!”). Patients spent 25% of their utterances giving information; just over half of this information was psychosocial/lifestyle in nature. Activation and engagement (11%) and question asking (6%) were the least common categories of codes. When patients asked questions, they were primarily regarding hearing aids.

The companion communication profile was very similar to that of the patient, despite providing less than half as many utterances in total. Companions (when present), like patients, spent the largest proportion of their utterances on building a relationship (56%), specifically agreement utterances (26%) followed by laughter (8%). As a proportion of their talk, companions spent a quarter of their utterances giving information, over half of which was psychosocial/lifestyle in nature. Activation and engagement (11%) and question asking (6%) were the least common categories of utterances. Like patients, companions’ questions most frequently pertained to hearing aids.

### 6.4.3.2. Differences between communication profiles
Table 6.4 displays the results of one way ANOVA with post hoc tests and mean difference in score. Audiologists gave significantly more education and counselling than patients and companions ($F(2, 42.6) = -67.1, p < 0.001$), more facilitation and activation than patients and companions ($F(2, 41.7) = 71.6, p < 0.001$) and asked significantly fewer questions than patients ($F(2, 40.2) = 3.8, p = 0.03$). Patients and companions both gave more building a relationship utterances than audiologists, $F(2, 40.5) = 175.4, p < 0.001$. Audiologists and patients both gave significantly more utterances in total than companions overall $F(2, 140) = 21.7, p < 0.001$. 

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Table 6.4 One-way ANOVA with Bonferroni correction for multiple comparisons, difference in categories of utterances between speakers (N=62)

<table>
<thead>
<tr>
<th>CATEGORY OF UTTERANCE</th>
<th>One-way between subjects ANOVA</th>
<th>Post Hoc test (with Bonferroni correction)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Welch’s F</td>
<td>Mean difference (Aud -pt) 95% CI</td>
<td>Mean difference (Aud –compan) 95% CI</td>
</tr>
<tr>
<td>EDUCATION AND COUNSELLING / INFORMATION GIVING</td>
<td>$F(2,42.6) = 67.1, p &lt; 0.001$</td>
<td>0.23** 0.18, 0.29</td>
<td>0.23** 0.15, 0.31</td>
</tr>
<tr>
<td>DATA GATHERING / QUESTION ASKING</td>
<td>$F(2,40.2) = 3.8, p = 0.03$</td>
<td>- 0.01 - 0.03, 0.00</td>
<td>-0.03* - 0.06, - 0.01</td>
</tr>
<tr>
<td>BUILDING A RELATIONSHIP</td>
<td>$F(2,40.5) = 175.4, p &lt; 0.001$</td>
<td>- 0.35** - 0.40, - 0.30</td>
<td>-0.30* - 0.40, - 0.24</td>
</tr>
<tr>
<td>FACILITATION AND PATIENT ACTIVATION / ACTIVATION &amp; ENGAGEMENT</td>
<td>$F(2,41.7) = 71.6, p &lt; 0.001$</td>
<td>0.13** 0.11, 0.16</td>
<td>0.13** 0.09, 0.18</td>
</tr>
<tr>
<td>TOTAL UTTERANCES</td>
<td>$F(2,140) = 20.70, p &lt; 0.001$</td>
<td>0.10 - 0.26, 0.26</td>
<td>105.00** 64.20, 145.90</td>
</tr>
</tbody>
</table>

*p<.05 **p<.01

Equal variance could not be assumed for one-way ANOVA results due to significant Levene Statistic. Welch robust test of equality of means statistic is used to verify significance and is reported in this table. Proportion of own talk was used for this calculation excluding total talk which comprises of speaker raw score.
6.4.3.3. **Presence of companion**

In the presence of a companion, audiologists gave significantly less education and counselling, $t(60) = 3.4$, $p = 0.001$; however the proportion of utterances pertaining to biomedical versus psychosocial did not change. Taken together, the counselling phase of audiology consultations was almost the same whether or not the companion was present.

6.4.3.4. **Communication dynamics**

Table 6.5 displays the communication dynamic scores for this consultation phase. In the counselling phase of the consultation in which diagnosis and management were discussed, the audiologist tended to be verbally dominant with a ratio of 1.6 utterances to patients and companions’ combined 1 utterance. The balance of content between psychosocial and biomedical favours the latter topic with a score of 0.7, less than 1.0, the minimum score required for an acceptable balance of content according to Roter (1997). A communication control score of 1.9 suggests that the audiologist was responsible for giving information.
### Table 6.5 Summary of communication dynamic measures (N=62)

<table>
<thead>
<tr>
<th>MEASURE OF COMMUNICATION DYNAMIC</th>
<th>MEAN SCORE</th>
<th>SD</th>
<th>RANGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verbal Dominance</td>
<td>1.6</td>
<td>0.9</td>
<td>0.7 – 5.9</td>
</tr>
<tr>
<td>Content Balance</td>
<td>0.7</td>
<td>0.3</td>
<td>0.2 – 2.0</td>
</tr>
<tr>
<td>Communication Control</td>
<td>1.9</td>
<td>1.0</td>
<td>0.5 – 5.6</td>
</tr>
</tbody>
</table>
6.4.3.5. Factors influencing communication dynamics and decision-making

The second aim of this study was to investigate any associations between audiologist, patient and consultation factors on communication dynamics. No variables were found to be significantly associated to two of the outcome measures, verbal dominance and content balance. One factor was examined for an association with the control score (proportionate length of counselling phase). A LMM established that the proportionate length of the counselling phase was associated with audiologist control. That is, when the counselling phase was proportionately shorter, audiologist control increased.

6.5. Discussion

The overarching aim of this study was to examine the nature of audiologist-patient/companion verbal communication throughout diagnosis and management planning in initial audiology consultations. When interpreting these results alongside practitioner-patient communication literature, patient-centred communication was infrequently observed. Instead, patients' psychosocial concerns were rarely addressed and patients/companions showed little involvement in the management planning process; audiologists' utterances categorised as education and counselling were complex and focussed on hearing aids, with little time given to explaining diagnoses or discussion of rehabilitative options. These results are congruent with recent findings that suggest communication breakdown and/or mismatch occur in audiology consultations and that opportunities to better understand the patient's needs or build a relationship, are often missed (Margolis, 2004; Nair & Cienkowski, 2010; Watermeyer et al., 2012; Ekberg., et al., 2014 a; Grenness et al., in press). Consequently, the present results have implications for clinical practice and future research.

Attending to patients’ psychosocial concerns is central to relationship building in patient-centred care (Mead & Bower, 2002; Grenness et al., 2014a); yet, audiologists in this study rarely engaged in affective conversations. Researchers
believe this behaviour is a way of avoiding challenging emotional conversations (Bernard et al., 2010; Vail et al., 2011; Meystre et al., 2013); however, missing these opportunities can lead to a patient perceiving the practitioner as paternalistic and reporting reduced consultation satisfaction (Roter & Hall, 2006; Castillo et al., 2012). A lack of emotional engagement goes against findings of Laplante-Lévesque et al (2013) who reported that audiologists believe they emphasise the audiologist-patient relationship and understand patients’ needs. Audiologists may have a good theoretical understanding of the need to address psychosocial concerns to facilitate behaviour change, given the extensive literature to this affect (Gagné & Jennings, 2011; Preminger & Meeks, 2012; English & Archbold, 2013); however, findings of this study indicate that this does not transfer to clinical practice. Given that multiple non-audiological factors are associated with help-seeking behaviours and hearing aid success (Knudsen et al., 2010; Meyer & Hickson, 2012; Hickson et al., 2014; Meyer et al., 2014), it is important that audiologists address psychosocial and emotional needs as they arise.

In addition to addressing psychosocial concerns, facilitation of patient engagement differentiates patient-centred from practitioner-centred consultations (Mead & Bower, 2000; Roter, 2000; Stewart et al., 2003). Such an approach is characterised by balancing amount of talk between speakers and seeking patients’ opinion or permission. In this study, neither of these behaviours was common and the large number of patient/companion agreement utterances suggests that much of this phase was spent listening to the audiologist talk. Successful patient engagement can have positive outcomes that extend beyond treatment adherence, such as improved self-efficacy and motivation (Stewart, 1995; Michie et al., 2003), both of which are important in hearing aid success (Meyer & Hickson, 2012). Thus promotion of patient engagement is an area of audiological rehabilitation in need of further attention.

In this study, patients’ engagement may have been minimised due to the way information was provided. Hearing aid information was predominantly presented
in a factual manner (e.g., “this hearing aid has an advanced directional microphone, whereas this one has a fixed microphone”), in multiple, conjoined utterances, with limited individualisation. Audiologists have previously been criticised for the quality of their information exchange; that is, providing generic, complex information, (Ross, 2004; Nair & Cienkowski, 2010; Watermeyer et al., 2012). In this study, communication relating to diagnostic results revealed an additional feature. Audiologists spent little time explaining results; rather, they moved promptly to recommending hearing aids. Spending little time discussing the meaningfulness of assessment results may mean that patients do not adjust to, or accept, the diagnoses. This may have consequences in later stages of rehabilitation. Acceptance of hearing loss is psychologically complex (Wänström et al., 2014) and according to models of behaviour change, a patient’s understanding of their health condition should be considered a precursor to taking rehabilitation action rather than a concurrent behaviour (Claesen & Pryce, 2012; Saunders et al., 2012).

Conjoining diagnosis and a hearing aid recommendation also implies there are no rehabilitation alternatives and immediately removes control from the patient (Mead & Bower, 2000). Claesen and Pryce (2012) point out that attending an initial audiology consultation is not, by default, hearing aid help-seeking; rather patients may seek education, acknowledgment or reassurance. By rapidly progressing to a hearing aid recommendation, cues to patients’ intentions may be missed and education that could facilitate future help-seeking may not occur. Instead, time is expended discussing hearing aids to those who are not ready or not interested. The reasons for rapid issue of hearing aids are complex and often relate to funding or organisational structure in that business models revolve around a hearing aid purchase. Thus, the impact of these behaviours on patient outcomes such as hearing aid uptake or attitudes to hearing aids is worthy of further investigation.

In addition to the rapid movement from diagnosis to rehabilitation recommendations, the majority of remaining communication revolved around hearing aids. Over 75% of audiologist education and counselling were spent
discussing hearing aids; yet only half of the patients who were recommended hearing aids decided to obtain them by the conclusion of the consultation. Moreover, patients were rarely offered alternative options and when present, companions made very little contribution to the conversation and audiologists gave proportionately less education and counselling. This result represents a missed opportunity for shared decision-making and individualisation of care; both important dimensions of patient-centred communication (Barry et al., 2012, and may be implicated in ineffective use of clinical time. In audiology, Laplante-Lévesque et al (2012) found that approximately one fifth of adults with hearing loss will choose an alternative rehabilitation option having decided not to obtain hearing aids. Therefore, it is likely that a number of patients in this study would have benefited from being offered an alternative. This result also adds weight to recent reports that many adult hearing aid users and General Practitioners were not aware that audiologists have alternative rehabilitative options to offer, or of the positive outcomes that can ensue (Gilliver & Hickson, 2011; Knudsen et al., 2013).

6.5.1. Clinical implications: efficient use of time and clinical skills

A number of results from this study have implications for the efficient use of time throughout initial audiology consultations. Given the lack of utterances pertaining to psychosocial counselling, after conversing about hearing aids, little time was left to educate patients and companions on communication tactics and living with hearing loss. Moreover, in self funded consultations, a greater proportion of the counselling phase was allocated to decision-making; yet there was no difference in the amount of time spent discussing financial matters between self and government funded consultations. That is, in government funded consultations, patients either received less information or had less opportunity to participate in the conversation due to time. In addition, in consultations where less time was available for the counselling phase, the audiologist was more likely to control the consultation structure and seek less patient or companion input. Adults with hearing loss consider it important that they be given time to participate in
decision-making (Laplante-Lévesque et al., 2010) and having less time or a perception of less time for management planning is a barrier to shared decision-making (Stewart, 1995). Thus, the reasons for differences between self and government funded consultations require further investigation.

The results of this study suggest there is an imperative to improve audiologist-patient/companion communication in initial consultations. For improvements in clinical practice to occur, change is required at an individual, organisational, educational, profession and funding-wide level. It is recommended that audiologists reflect on their own communication (Geltman Cokely & DePlacido, 2012), organisations are encouraged to value communication skills and shared decision-making and, appropriate training should be provided given the evidence to support the efficacy of communication skill training (Bombeke et al., 2012). Lastly, the influence of systematic drivers, such as those introduced by funding models, on audiologists’ communication should be considered. In Australia and in many other countries the government funding system is such that clinics receive payment for the number of clients seen and hearing aids fitted, rather than the outcomes achieved. This obviously has the potential to influence the nature of clinical interactions to be more device-centred than patient-centred. Therefore, organisations, educational institutions and professional bodies are challenged to consider how patient-centred skills can be instilled, valued and reflected in funding models of this kind.

6.5.2. Study limitations and future directions

While this study of audiologist-patient communication throughout diagnosis and management planning provides novel insight into the clinical occurrence of patient-centred care, some limitations are acknowledged. First, measures of outcome such as patient satisfaction and adherence to treatment recommendations were not available in this study. Thus, while the findings are in line with research in other areas of healthcare, no direct associations can be made between the communication observed in this study and clinical outcome. Second,
while this study failed to identify multiple factors that influence communication dynamics, this result should be interpreted with caution. Research from another patient group with a similar sample size also found no associations (Vail et al., 2011), while other studies with larger samples have found multiple associations between patient and practitioner gender, ethnicity and age (Johnson et al., 2004; Roter & Hall, 2006; Schmid Mast et al., 2007; Beach et al., 2010). Given findings in other areas of health, a larger sample might be sought across multiple countries for insight into organisational, cultural and educational factors. The participant group included in this study may limit generalisability of results to different age groups, cultural backgrounds and different stages of audiological rehabilitation.

In terms of analysis and generalisability, some biasing of the sample may have occurred given that participants were aware they were being filmed. Additionally, there are a number of limitations related to the interaction analysis system used here that should be acknowledged. While the RIAS findings provide novel insight into audiologist-patient/companion communication, the system overlooks some important aspects of communication and interaction, such as prosody, non-verbal communication and turn-taking behaviours. Consequently, the authors have undertaken additional qualitative interpretation of these data using Conversational Analysis, which is reported in Ekberg et al 2014 a; b; c). Further, the RIAS system contains some inherent assumptions about what is considered ‘patient-centred’ and how ‘control’ is played out via verbal communication. Such definitions warrant additional in-depth analysis in relation to their applicability to audiology in future research.

6.5.3. Conclusions

The aim of this study was to explore the nature of audiologist-patient and companion communication throughout diagnosis and management planning in initial audiology consultations including examination of associations between communication dynamics and audiologist, patient and consultations factors. A sample of 62 consultations drawn from 26 audiologists was filmed and analysed
using the RIAS. Results indicated that audiologists rarely participated in affective communication, patients/companions showed little verbal engagement, audiologists’ utterances were predominantly hearing aid related and alternatives to hearing aids were rarely provided. In summary, the pattern of communication representative of patient-centred communication was rarely observed. Future research should examine the influence of audiologist communication on outcomes and further investigate facilitators and barriers to optimal communication in audiologist-patient and companion communication and the provision of patient-centred audiological rehabilitation.

6.6. Acknowledgements

The authors sincerely thank all participants for taking part in the study. Additionally, Els Walravens of National Acoustic Laboratories, Sydney, is acknowledged for her vital role in data collection and coding, as is Rachel Sore for her statistical consultation, and Debra Roter and Susan Larson for RIAS training.
6.7. References


Trychin, S. (2012). Factors to consider when providing audiological services to people who have hearing loss and their communication partners. *Seminars in Hearing, 33*(1), 87-96.


CHAPTER 7

Discussion and conclusions

7.1 Introduction

The purpose of this final chapter is to bring together the findings of the research contained in this thesis and discuss the resulting contribution and implications to audiology literature, while acknowledging strengths and limitations and key areas of future research. This chapter addresses these points in five sections: 1) overview and integration of key findings; 2) contribution to the literature; 3) implications relating to uptake and success with hearing aids, and barriers and facilitators to patient-centred audiological rehabilitation; 4) future research directions; and, 5) strengths and limitations of this body of work.
7.2 Overview of key findings

The overall aim of the thesis was to explore the meaning and nature of patient-centred interactions in audiological rehabilitation for older adults. The resulting thesis consists of two sequentially conducted but closely related studies. The specific aims were:

1) To explore the experiences of older adults who own hearing aids, relating to their interactions with audiologists.

2) To develop a definition of patient-centred audiological rehabilitation from the perspective of older adults who own hearing aids.

3) To determine the nature of patient-centred communication between audiologist and older adult patient/companion in initial audiology consultations.
   a) To observe the nature of patient-centred communication between audiologist and older adult patient/companion in the history-taking phase of initial audiology consultations.
   b) To observe the nature of patient-centred communication between audiologist and older adult patient/companion in the counselling phase of initial audiology consultations.
   c) To identify audiologist, patient or consultation-related factors that may influence patient-centred communication dynamics in initial audiology consultations.

The literature review reported in Chapter 2 (incorporating Grenness et al (2014b)) presented the rationale for this area of study. The combined knowledge of persistent low rates of help-seeking by older adults with hearing impairment and low uptake of options in audiological rehabilitation, alongside a paucity of research investigating the influence of the audiologist and patient-audiologist interaction, highlighted the need to examine models of quality patient-practitioner interaction.
in healthcare. Patient-centred care was proposed as a theoretical framework to examine the meaning and nature of patient-audiologist interaction.

Initially, the meaning of patient-centred care in the context of audiological rehabilitation for older adults needed to be examined. Thus, the qualitative study contained in Chapter 4 explored the experiences of older adults regarding the behaviours and processes they considered to be patient-centred (Grenness, Hickson, Laplante-Lévesque & Davidson, 2014a). The views of participants who had owned hearing aids for at least one year were analysed using qualitative content analysis (Graneheim & Lundman, 2003). The results indicated three dimensions to patient-centred audiological rehabilitation: the therapeutic relationship, the players (audiologist and patient) and clinical processes (information exchange and decision-making/problem-solving), and one overarching theme: individualised care. The three dimensions and the theme were consistent with the cognate literature on patient-centred care in other areas of health (Cooper, Smith, & Hancock, 2008; Kidd, Bond, & Bell, 2011; Mead & Bower, 2000b; Stewart, 2001). Particular emphasis was placed on trust in the therapeutic relationship, known to play a mediating role in treatment acceptance when the treatment is costly to the patient (Piette, Heisler, Krein, & Kerr, 2005).

Results of this study were displayed visually in a model of patient-centred audiological rehabilitation (see Figure 4.1, Chapter 4). A second model, the operationalised model of patient-centred audiological rehabilitation, is intended to act as a guide for clinicians and organisations to foster patient-centred care in clinical encounters (see Figure 4.2, Chapter 4). Four concepts are contained in this model with the therapeutic relationship the central concept. Two pillars support this relationship: informed patients and involved patients. The fourth concept, individualised care, occupies the top position in the model. It suggests that to successfully build a relationship, both involving and informing patients is essential and patients must be treated as individuals who think and act independently. This model provides a robust structure through which results of the second study can be interpreted.
The findings of Study 1 guided the focus of Study 2: observations of verbal communication between audiologist and patients in initial consultations. Study 2 took a novel approach of going ‘into the audiology consultation’ by taking audio-visual recording of initial patient/companion-audiologist interactions. This observational technique has frequently been used in other areas of healthcare (see review by Roter and Larson (2002)); however, this thesis was the first to use the interaction analysis instrument, RIAS, in audiology consultations. To ensure maintenance of consultation nuances in the analysis, it was decided to evaluate the history-taking phase separately from the counselling phase. The interaction analysis results for the two consultation phases of Study 2 were presented in Chapters 5 (Study 2a) and 6 (Study 2b).

Study 2a, the history-taking phase analysis contained in Chapter 5, reported findings from 63 filmed initial audiology consultations using the RIAS. Results suggest that audiologists tended to control the structure and agenda of history-taking. For example, they asked predominantly closed-ended questions, with a focus on biomedical content. In addition, despite audiology patients in Study 1 indicating their preference for having a therapeutic relationship with their audiologists, audiologists in Study 2 displayed little emotional engagement in their communication with patients. Given that the main role of history-taking phase is to build a relationship with the patient and gain an understanding of their perspective and concerns (Baker, O’Connell, & Platt, 2005; Haidet & Paterniti, 2003), the quality of history-taking in audiological rehabilitation consultations has implications for the remainder of the consultation.

Chapter 6 focussed on the counselling (diagnosis and management planning) phase of 62 of the 63 consultations described in Chapter 5; one consultation was excluded from Study 2b because of technical recording problems during the counselling phase. As reported in Chapter 6, results of the RIAS analysis show that, much like in the history-taking phase, patient-centred communication was infrequently observed in the counselling phase. The key findings in this chapter were that audiologists rarely invested in relationship development: patient
concerns were either not addressed or were met with an informational rather than emotional response. Patients and companions were rarely engaged in the discussion of diagnosis or involved in management planning; their opinions were rarely sought and patients/companions asked few questions. Consequently, a shared approach to decision-making was rare. Audiologists predominantly led and dominated the exchange of information, which consisted primarily of hearing aid information. Hearing aids were most commonly recommended and alternative management options were rarely provided. Even less frequent was a discussion about optimising communication. Hearing aid information tended to be complex and to lack relevance to the patient’s daily life. The implications of these findings and how to address them are discussed in section 7.4.

The use of sequential mixed-methods in this thesis allows for triangulation (Morse, 1991) of the results; that is, for results from the two related studies employing different methodological paradigms to inform and complement each other. The results of these two studies can be integrated to answer the following question: do older adults receive patient-centred audiological rehabilitation (as observed in Chapters 5 and 6) according to the operationalised model of patient-centred audiological rehabilitation (as developed in Chapter 4)? To answer this question, results from Study 2a and Study 2b are considered in the context of the four dimensions of the operationalised model of patient-centred audiological rehabilitation of Study 1. This triangulation is presented in Table 7.1. In this table, specific communication behaviours represent the presence and quality of each dimension of patient-centred care from Study 1. A summary of the communicative behaviour is presented alongside specific evidence from Study 2a or 2b. Such results mark a significant contribution to the field of audiological rehabilitation and provide an impetus for improvements to clinical communication and processes in the future. These results raise many questions, such as: What are the barriers and facilitators to implementing a patient-centred approach and what impact does patient-centred audiological rehabilitation have on outcomes? The implication of these findings is discussed in section 7.4.
<table>
<thead>
<tr>
<th>FINDINGS STUDY 1</th>
<th>FINDINGS STUDY 2a AND 2b</th>
<th>EXAMPLE COMMUNICATION BEHAVIOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Therapeutic Relationship</td>
<td>Lack of psychosocial exchange</td>
<td>• Audiologist asked few psychosocial questions</td>
</tr>
<tr>
<td></td>
<td>Patients’ concerns rarely addressed with empathy or appropriate responses</td>
<td>• Patients often repeated their concerns</td>
</tr>
<tr>
<td>Informed</td>
<td>Audiologist missed opportunities to explore the patient's perspective of their hearing impairment</td>
<td>• Goal setting conducted as a separate discussion typically in counselling phase rather than history phase</td>
</tr>
<tr>
<td></td>
<td>Few alternative rehabilitation options provided</td>
<td>• Hearing aids offered to 94% of patients diagnosed with a hearing impairment, irrespective of their needs</td>
</tr>
<tr>
<td></td>
<td>• Alternative rehabilitation options provided in just 5 of 62 consultations; each time only offered once hearing aids rejected</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Audiologists most frequent utterances were hearing aid related</td>
<td>• 81% of audiologist education and counselling was biomedical</td>
</tr>
<tr>
<td></td>
<td>Information relating to diagnosis and recommendations was complex and technical</td>
<td>• Audiologists used long sentences with few breaks between</td>
</tr>
<tr>
<td></td>
<td>Patients were told little about how to improve their communication ability</td>
<td>• Few audiologists’ utterances related to living with hearing impairment</td>
</tr>
<tr>
<td></td>
<td>Companions were rarely involved in the consultation and their insight rarely sought</td>
<td>• Audiologists asked fewer lifestyle and psychosocial questions and offered fewer education and counselling utterances in consultations where a companion was present</td>
</tr>
<tr>
<td>Involved</td>
<td>Patient and companion cast in a passive role throughout consultation</td>
<td>• Audiologist verbally dominant throughout history-taking and counselling phases</td>
</tr>
<tr>
<td></td>
<td>Little patient or companion engagement</td>
<td>• Predominance of patient and companion “agreement” utterances</td>
</tr>
<tr>
<td></td>
<td>• Patient and companion opinions rarely sought</td>
<td>• Few audiologist partnership building statements</td>
</tr>
<tr>
<td>Individualised</td>
<td>Little flexibility in history-taking agenda</td>
<td>• Audiologist questions predominantly closed-ended and proforma based</td>
</tr>
<tr>
<td></td>
<td>Few utterances related to explaining the specific lifestyle implications of rehabilitation on offer</td>
<td></td>
</tr>
</tbody>
</table>
7.3 Contribution to the literature

7.3.1 Using patients’ perspectives to inform and implement clinical change

Given persistent low rates of hearing aid uptake and success, researchers have recently sought to understand patients’ perspectives of why this may be the case (Knudsen, Nielsen, Kramer, Jones, & Laplante-Lévesque, 2013; Laplante-Lévesque, Jensen, Dawes, & Nielsen, 2013; Laplante-Lévesque et al., 2012; Wänström et al., 2014). Outside of audiology, patient (also termed consumer or end-user) perspectives are invaluable in motivating and implementing change to policy and health service delivery (Australian Commission on Safety and Quality in Healthcare, 2010; Boote, Telford, & Cooper, 2002; Coulter & Dunn, 2002; Coulter & Elwyn, 2002; Davies & Cleary, 2005). Moreover, patient perspectives in research are said to “promote reliable, relevant research of importance to patients and to those caring for them” (Chalmers, 1995, p. 1317). For example, a report by the Australian Commission for Safety and Quality in Healthcare (2010) advocated patient involvement in research for the following reasons: creating public value in service delivery by regaining the trust of consumers; encouraging patients to value the experience offered by health professionals; and, to drive appropriate decisions relating to increasing efficiency. Each of the aforementioned reasons are applicable to the current practice of audiological rehabilitation where a paradigm shift from being technology-centred to patient-centred is in motion (Hickson, 2012). The central aim of Study 1, a qualitative descriptive study, was the exploration of patients’ perspectives. Thus, the results of this study make a significant contribution to the body of research which evidences patients’ preferences for audiological rehabilitation service delivery; barriers and facilitators to hearing aid uptake and success; and, overall patient satisfaction with audiology services.

7.3.2 Understanding patient-audiologist interactions and communication

In addition to providing a definition of patient-centred care specific to audiological rehabilitation from the patient’s perspective, this thesis significantly expands the current knowledge about patient-audiologist interactions. Until recently, the
communication skills of audiologists received little empirical attention. While previous research highlighted this as an area worthy of attention (English, 2000; Margolis, 2004), no systematic examination of audiologist communication nestled in the context of patient-centred care had been conducted, nor had patients’ experiences and preferences for patient-audiologist interactions been used as a basis to triangulate observations of patient-audiologist communication.

As described in Chapter 2, the literature surrounding patient-audiologist interactions suggests that patients and audiologists have a preference for patient-centred behaviours (Laplante-Lévesque, Grenness, & Hickson, 2014; Laplante-Lévesque et al., 2012; Poost-Foroosh, Jennings, Shaw, Meston, & Cheesman, 2011). Despite this, some deficiencies in audiologists’ interaction skills (or communication skills, specifically) were evident in two previous research studies of verbal communication in audiology consultations. Nair and Cienkowski (2010) examined the oral health literacy level of audiologists and adult patients in 12 routine hearing aid consultations. They found audiologists tended to use language which was incongruent with health literacy levels of patients; audiologists used technical jargon and long sentences. The results suggest that audiologists failed to individualise their communication with each patient appropriately. Similar findings were observed in a paediatric audiology context when audiologists were communicating with carers (Watermeyer, Kanji, & Cohen, 2012). The complexity and unilateral nature of audiologists’ communication with carers relating to diagnosis and management planning was associated with poor carer recall and poor carer understanding. Both studies found audiologists’ information giving was not consistently patient-centred. While different approaches were taken, these studies focussed predominately on exchange of information and included small samples. Nevertheless, the findings of Nair and Cienkowski (2010) and Watermeyer et al (2012) are congruent with the calls of a number of authors in audiology who believe audiologists’ interactions with patients require significantly more empirical attention (English, 2005; Greer Clark, 2007; Margolis, 2004; Watermeyer et al., 2012).
The communication and interaction skills of audiologists have been questioned by previous authors (English, 2008; Gagné & Jennings, 2011; Margolis, 2004). Specifically, researchers contend that audiologists’ communication relating to psychosocial issues is particularly poor, or absent (English, 2008; English, Naeve-Velguth, Rall, Uyehara-Isono, & Pittman, 2007; Margolis, 2004); yet, no known studies have examined this directly prior to this thesis. Therefore, this thesis extends, deepens and contextualises previous findings and addresses a gap in the literature with respect to examining psychosocial communication. Audiologists’ interactions with adult patients were explored in the vital context of initial adult audiology rehabilitation consultations. This analysis of patient-practitioner interactions included a breadth of communication areas (i.e., information exchange, relationship building, and decision-making). Both task-focussed and socio-emotional communication was examined in information exchanges, along with examination of relationship building, data gathering and patient engagement.

The investigation of audiologists’ interaction with patients in Study 2 was grounded in the preferences reported by older adults experienced with audiological rehabilitation. From the results of Study 1, it was evident that patients value relationship building alongside individualised information exchange and involvement in decision-making (Grenness et al., 2014a). However in the initial audiology consultations observed in the second study, information giving tended to be task-focussed, unilateral, technical and complex (Grenness, Hickson, Laplante-Lévesque, Meyer, & Davidson, in press a; Grenness, Hickson, Laplante-Lévesque, Meyer, & Davidson, in press b). Additionally, patient-centred verbal communication relating to relationship building, data gathering and patient engagement was infrequently observed. That is, communication that encompassed socio-emotional and psychosocial factors rarely occurred. Such pertinent findings have a number of important implications for clinical practice. Specifically, implications relate to the possible impact of audiologist communication on patient outcomes and a shared understanding of barriers and facilitators to providing patient-centred audiological rehabilitation.
7.3.3 Patient-centred care as a framework for patient-audiologist interactions

At the commencement of this thesis and after extensive review of the literature, patient-centred care was chosen as an appropriate framework through which patient-audiologist interactions could be examined. However, some limitations to this decision emerged during the completion of this body of work. An important limitation of the patient-centred care framework is that it does not represent the centrality of relationships. Research focussed on the importance of the patient-practitioner relationship specifically is abundant and relevant to many healthcare contexts (Anderson & Zimmerman, 1993; Cole & McLean, 2003; Goodyear-Smith & Buetow, 2001; Hall, Ferreira, Maher, Latimer, & Ferreira, 2010; Hall, Horgan, Stein, & Roter, 2002; Ridd, Shaw, Lewis, & Salisbury, 2009; Roter, 2000, 2006; Williams, Haskard, & DiMatteo, 2007). The two models developed in Study 1 of this thesis (see Figures 4.1 and 4.2) also present the therapeutic relationship, rather than the patient in isolation, as the core element that patients value. Given these findings, an alternative framework, relationship-centred care (Tresolini, 1994), may be more appropriate than patient-centred care. Relationship-centred care acknowledges that the rapport between patients and clinicians, rather than the patient per se, is central to quality care and provides guidance for how consultations should occur. Moreover, a relationship-centred approach values relationships built with the family of patients, other health professionals and the community more broadly (Frankel, Eddins-Folensbee, & Inui, 2011). Relationship-centred care requires further investigation and consideration in the context of audiological rehabilitation.

7.4 Implications

This thesis reports the first study to define patient-centred audiology from the perspective of adults who own hearing aids, followed by an interaction analysis of initial audiology consultations. The combined results of the thesis suggest that major dimensions of patient-centred interaction are absent in verbal
communication occurring during adult audiological rehabilitation consultations. A major implication of this is that despite increasing attention on patient-centred practice in audiology (Gagné & Jennings, 2011; Hickson, 2012), translation into clinical practice has not occurred. The findings of this research illuminate the need to consider the impact of patient-audiologist interaction on help-seeking behaviour and on older adult’s uptake of options for managing hearing impairment. Findings also highlight the barriers and facilitators to implementing patient-centred care within contemporary audiological rehabilitation practice.

7.4.1 The impact of patient-audiologist interaction on help-seeking and uptake

Patient-audiologist communication observed in Study 2a and 2b of this thesis is consistent with practitioner- or device-centred communication. Previous research provides substantial evidence that practitioner-controlled, technical-focussed consultations leads to an increased likelihood of communication breakdown, poorer patient health outcomes and are less preferred by patients (Bensing, 2006; Bertakis, Roter, & Putnam, 1991; Cooper et al., 2003; Hall, Irish, Roter, Ehrlich, & Miller, 1994; Levinson, Roter, Mullooly, & Frankel, 1997; Roter et al., 1997; Stewart, 1995). In the case of audiological rehabilitation, the pertinent outcomes are likely to be patient satisfaction, help-seeking and uptake of hearing aids or alternative rehabilitation options. While measures of patient outcome such as adherence to treatment and satisfaction were not included in this study, it is recommended that such measures be included in future research. Analysis of the communication between audiologist, patient and companions observed in Study 2a and 2b, revealed three main clinical implications: building relationships, companion involvement and shared decision-making.

7.4.1.1 Building relationships

Failing to invest in relationship building is likely to influence patient trust and patient adjustment to diagnosis and recommendations. In Study 2b, in response to patient concerns, education about hearing aids was provided, often at the expense
of exploration of patient readiness, alternative education or support that may have facilitated more positive patient outcomes. In this way, a lack of relationship building can influence patient outcomes. Moreover, given the value placed on therapeutic relationships and trust by older adult audiology patients (Grenness et al., 2014a), the absence of verbal communication that might build trust may have broad implications. For example, as evidenced by Piette et al. (2005), patients are less likely to consider costly treatment options offered by a practitioner in the absence of trust. Consequently, the audiologist’s communication may have a direct influence on hearing aid uptake.

7.4.1.2 Companion involvement

The importance of involving companions in audiological rehabilitation is well established (Preminger & Meeks, 2010, 2012; Scarinci, Worrall, & Hickson, 2008, 2009, 2012). In addition to their own experience of disability as a consequence of their companions’ hearing impairment, companions require their own rehabilitation strategies (Preminger, 2002; Scarinci et al., 2008) and companions can provide powerful and invaluable insight into the lived experience of hearing impairment. More broadly in healthcare, the probability of successful rehabilitation uptake has been found to increase with the support of companions (Hoover-Steinwart, English, & Hanley, 2001).

Depending on their experience, companions (often spouses) may bring psychosocial concerns to the audiologist. If left unaddressed, these psychosocial concerns may be detrimental to rehabilitation success. Alternatively, if dealt with appropriately, they may be turned into facilitators (Scarinci et al., 2008). In either case, how the audiologist deals with the situation is crucial (Preminger, 2002; Scarinci et al., 2008). Throughout initial audiology consultations reported in Study 2a and 2b, companions contributed between 10-14% of total utterances. Many of these companion utterances were “agreements”, suggesting passive involvement in the receipt of information. In consultations where companions were present, audiologists asked significantly fewer psychosocial and lifestyle questions in the
history and offered significantly fewer education and counselling utterances in the counselling phase. This finding of diminished companion involvement in consultations is not consistent with a family-centred approach where open communications between the patient, companions and the clinician or other health professionals are expected (Hughes, Bamford, & May, 2008). The data from this research record that the potential benefits of companion involvement were missed in initial audiology consultations.

### 7.4.1.3 Shared decision-making

Some practitioner behaviours (e.g., patient and family engagement, exploration of fears and expectations, provision of options and individualisation of information) are known to increase the likelihood of shared decision-making occurring in initial audiology consultations (Elwyn, Edwards, Kinnersley, & Grol, 2000). In the filmed consultations, a lack of discussion of options, minimal patient engagement, excessive time pressures for patients to make decisions and insufficient time spent developing trust were apparent. There are three reasons why these results are surprising. Firstly, it is well documented that positive outcomes are achieved from independent or concurrent use of audiological rehabilitative interventions other than hearing aids (Laplante-Lévesque, Hickson, et al., 2012). Secondly, provision of hearing aids without supporting education does not successfully minimise hearing-related impairment (Knudsen et al., 2010). Thirdly, there is substantial evidence that shared decision-making, for which provision of options and family member involvement are essential ingredients, positively influences outcomes such as treatment adherence, satisfaction and self-management (Edwards & Elwyn, 2009; Barry et al., 2012; Elwyn et al., 2012). Recently researchers in audiology (Laplante-Lévesque, Hickson, & Worrall, 2011), and in healthcare more broadly (Barry, Barry, & Edgman, 2012), have advocated the importance of shared decision-making and provision of individualised rehabilitation plans (Cott, 2004) to maximise patient outcomes for chronic health conditions (Michie, Miles, & Weinman, 2003). Despite this, it is acknowledged that translation of theory into practice and policy is a significant challenge (Edwards, Evans, & Elwyn, 2003).
For shared decision-making to occur in audiology, changes are required on multiple levels. Specifically, rehabilitation options, such as communication programs, need to be considered as concurrent alternatives rather than supplements to hearing aids (Spitzer, 2000). Reimbursement rules would need amendment for organisations to provide this service and clinicians would need to understand its benefits. Consequently, it is imperative to consider the barriers and facilitators to the translation of research on patient-centred interactions into audiological rehabilitation practice.

7.4.2 Barriers and facilitators to patient-centred audiological rehabilitation

7.4.2.1 Audiologists

It has been argued that provision of patient-centred care is an issue of professionalism. Greer Clark (2007) describes the ethical imperative for audiologists to consider themselves as facilitators; that is, for audiologists to coach patients through hearing impairment acceptance, to nurture patient readiness to take action and to provide psychosocial support. However, a contrasting group of behaviours was more frequently observed in this thesis: dominant audiologists and passive patients were all too common. Despite the behaviours that were observed in Study 2a and 2b, the literature espouses conflicting reports about audiologists’ perceptions of their own communication skills, as described in section 2.3 of this thesis. Audiologists report having a high preference for provision of patient-centred care (Laplante-Lévesque et al., 2014) and believe they are skilled at developing relationships with patients (Laplante-Lévesque et al., 2013). However, a number of researchers suggest that audiologists feel uncomfortable dealing with challenging psychosocial or tense situations (Ekberg, Grenness, & Hickson, 2014; Greer Clark, 2007; Luterman, 2008). Perhaps this is due to a lack of training or support (Martin, Barr, & Bernstein, 1992). These results suggest that audiologists, themselves, may be a barrier to patient-centred care and thus, the mismatch between preferences, beliefs and clinical behaviours needs to be addressed.
Audiologists’ mindset can be a barrier or facilitator to provision of patient-centred care (Erdman, Wark, & Montano, 1994). Specifically, clinicians own inherent beliefs about control, expertise and ability to change can stall implementation of alternative models of patient-audiologist interactions and modes of service delivery (Erdman et al., 1994). To overcome this, it is important for clinicians to reflect on their own communication competencies. Skilled self-reflection is an essential attribute of healthcare professionalism (Mann, Gordon, & MacLeod, 2009) and can facilitate provision of patient-centred care. Reflection and reflective practice is advocated in audiology (Geltman Cokely & DePlacido, 2012) and can be effectively taught (Mann et al., 2009). The development of reflective practice requires focus and effort on the part of the practitioner (Sobral, 2000). Clinician behaviours can therefore be a barrier or a facilitator to implementation of patient-centred care.

### 7.4.2.2 Organisational structure, reimbursement and funding bodies

A supportive environment is one of the most influential factors affecting whether a practitioner will reflect on their own interactions with patients and implement patient-centred care. While the clinician is ultimately responsible for the way processes occur, his or her organisation may require or advocate specific behaviours. Ultimately, organisational factors such as an overtly supportive environment and an ethos of quest for provision of high quality, patient-centred care, does flow through to influence patient-practitioner interactions (Esmaeili, Cheraqui, & Saisali, 2013; Gillespie, Floring, & Gillam, 2004; Luxford, Safran, & Delbanco, 2011). For instance, Mamede, and Schmidt (2005) found that clinicians’ reflective practice decreased over time when an organisation did not reinforce the importance of such behaviours.

Barriers to patient-centred practice are complex and are intertwined with organisational and professional issues in audiology, yet little research has explored this directly. Organisational structure might undermine a clinicians ability to provide patient-centred care if, for example, they received reimbursement or
commission for specific tasks to be performed, with little regard for how the tasks are performed, as was described in Chapter 1, section 4. While healthcare researchers outside of audiology reinforce the financial value of patient-centred practices (Charmel & Frampton, 2008), it is possible that funding and organisational models which reward hearing aid provision in isolation (as is the case in Australia; described in section 1.4 of this thesis), and fail to recognise that patient-centred care is central in short- or long-term success with audiological rehabilitation (including hearing aid use and satisfaction) are likely to be implicated in a dearth of patient-centred practices in audiology. These organisation- and profession-wide barriers mean that audiologists alone cannot be fully responsible for the translation of patient-centred principles into practice. As has been advocated for over 20 years (Erdman et al., 1994), a profession-wide movement towards patient-centred audiological rehabilitation is imperative.

To facilitate implementation of patient-centred care in audiological rehabilitation, consideration of alternative models of care and augmentative technology is required. Possible changes which may maximise audiologists’ time to counsel patients and engage in shared decision-making include: use of support personnel to conduct tasks where audiological expertise is not required; use of automated testing, where appropriate; provision of pre-consultation questionnaires, history forms and educational packages, and; maximisation of resources such as information on the internet and mobile devices to educate and engage patients. This approach to audiology is currently being explored in the context of increasing access to services in rural and remote populations (Clark & Swanepoel, 2014), but is also applicable to standard care. The next step is for organisations to explore the long-term financial viability of such changes to audiological service delivery. Additionally, the efficacy of the ‘test and fit’ single consultation should be questioned and compared with a model where patients are given time to reflect on diagnostic results prior to seeking or entering a management planning discussion. This may come in the form of two consultations instead of one, where the first is shorter and the second is available to those who choose to attend for further discussion and counselling on intervention options. Such approaches to health
delivery are currently being explored and implemented in other areas of healthcare (Lizarondo, Kumar, Hyde, & Skidmore, 2010; Luxton, McCann, Bush, Mishkind, & Reger, 2011).

7.4.2.3 Education

Audiology education should be a driver of change to audiological rehabilitative models of practice. In current audiology education in Australia, the United States and United Kingdom, the teaching of communication skills and the theory and practice of patient-centred care is of varied scope and is therefore a possible barrier to provision of patient-centred care. In Australia, an unpublished accreditation system for Master of Audiology degrees has been established. However, amongst the designated competencies, patient-centred skills are not strongly prioritised and descriptions of skills are broad and vague. Over the last 20 years, American tertiary audiology training courses have been criticised for the lack of formalised communication and counselling education (Crandell, 1997; Atkin; 2007). However, with the transition to an AuD model of training for audiologists, universities more readily incorporated counselling into the curricula (English & Weist, 2005) in order to provide graduates with the skills needed to practice in accordance with American Speech-Language-Hearing Association practice patterns (ASHA, 2006) and American Academy of Audiology scope of practice (AAA, 2004). Little research has been published about audiology training in Europe or the United Kingdom; however, the British Society of Audiology clearly outlines the expectation that audiologists working in the United Kingdom possess mastery of counselling skills (BSA, 2012).

The results of Study 2a and 2b indicate that there is an imperative to optimise the teaching of patient-centred communication skills. While this has previously been suggested (Martin et al., 1992), there is now evidence to suggest that courses focussed on counselling skills in audiology can improve practices (English & Archbold, 2013). Indeed, improved education to medical and nursing students on communication skills and patient-centred behaviours has been shown to be a
facilitator to patient-centred clinical practice (Mann et al., 2009; Wouda & van de Wiel, 2013). Audiology students are likely to benefit in a similar way if the university curricula include overt education and training in patient-centred communication and consider the influence of clinical experience on communication skills. For example, as evidenced by Laplante-Lévesque et al (2014), more experienced audiologists have a greater preference for patient-centred practice and may be positive role models for this behaviour as part of the education of the next generation of audiologists.

7.5 Future research

This thesis contributes to the small but growing area of research investigating patient-centred care in audiology. Like all relatively unexplored areas of research, many new questions are raised and invite further investigation. Future directions for research on patient-centred care in audiology may usefully be grouped into four areas: outcome measurement, preferences, observations and interventions.

7.5.1 Outcome measurement studies

Measurement of the impact of patient-centred care on outcomes is essential for the facilitation of clinical change. Outside of audiology, research has been conducted investigating the influence of alternative patient-practitioner interaction models on outcome measurement (Bertakis & Azari, 2011; Greene, Adelman, Friedmann, & Charon, 1994; Mead & Bower, 2000a; Sep, van Osch, van Vliet, Smets, & Bensing, 2014; Stewart, 1995; Stewart et al., 2000). However, in a review article, Mead and Bower (2002) highlight that the effectiveness of this research is frequently hampered by measures which are insensitive or inappropriate for complex, multifaceted constructs, such as satisfaction. While a number of outcome measurement tools have been developed which take a holistic approach to patient and companion experience of hearing impairment (Cox & Alexander, 2001; Preminger & Meeks, 2012; Scarinci et al., 2009), none examine the satisfaction levels that would result from the experience of seeing an audiologist who adopts a
patient-centred approach in contrast to a practitioner-centred approach. To address this paucity of research in audiology, a concerted effort should be made to adapt existing instruments developed for other contexts, or to develop new outcome measurement systems, which are appropriate for audiology and sufficiently sensitive to patient-centred care practice.

7.5.2 Studies of preferences

It has been argued that the congruence or fit between a patient and a practitioner’s preferences for interaction styles are as important, if not more important, than the interaction style alone (Krupat, Yeager, & Putnam, 2000). Preference studies involve documentation of patient and/or practitioner values and orientations relating to interaction style (Bastiaens, Van Royen, Pavlic, Raposo, & Baker, 2007; Krupat, Bell, Kravitz, Thom, & Azari, 2001; Krupat et al., 2000; Little et al., 2001). In audiology, such studies, particularly when paired with observational studies, may inform the development of interaction skills which maximise practitioner ability to individualise care as is preferred by patients. Additionally, these studies would aid understanding of preferences within different patient groups.

7.5.3 Observational studies

Observational studies, such as those included in this thesis, provide concrete evidence of actual communicative behaviours. Such studies can document current behaviour and changes in behaviour. Furthermore, the methods employed are particularly powerful in conjunction with intervention and preference studies. Future research investigating verbal communication in various audiology contexts, for example with patients of different ages, in different countries or in different settings (e.g., tele-health) is required. In addition, investigation of non-verbal communication could provide further insight into how patient-centred communication is manifested in audiological rehabilitation. In the context of patient-practitioner interactions, non-verbal behaviour can play a significant role (Pawlikowska, Zhang, Griffiths, van Dalen, & van der Vleuten, 2012). For example, a review suggested that non-verbal communication is particularly important.
throughout socio-emotional conversations (Roter, Frankel, Hall, & Sluyter, 2006) and supportive non-verbal communication leads to higher patient satisfaction (Griffin, Wilson, Langer, & Haist, 2003; Hall, Harrigan, & Rosenthal, 1995). Moreover, practitioners who accurately perceive patients’ non-verbal communication receive higher satisfaction ratings from patients (DiMatteo, Taranta, Friedman, & Prince, 1980).

7.5.4 Intervention studies

A major implication of this research is the need for further education and training in the area of communication for audiologists and audiology students. The research points to significant scope for development and efficacy testing of communication skills interventions. As the body of literature on the nature of patient-centred audiological rehabilitation grows and points to the fact that interactions between audiologists and older adult patients are not consistently patient-centred, audiologists and organisations need to seek advice and training on how to optimise communication. It is the responsibility of researchers to ensure that audiologists, organisations and education institutions have access to such advice and training. Therefore, future research should, develop, implement and evaluate clinical interventions regarding patient-centred care for audiologists-in-training and audiologists. One tool currently exists to measure counselling skills of audiology students specifically: the Audiologic Counselling Evaluation instrument developed to assess student audiologists’ counselling skills in a paediatric context for delivering bad news (English et al., 2007). This 22 item instrument in its first publication was found to have moderate-to-good inter rater reliability and is recommended for use in educational contexts (English et al., 2007). There is little published data on such tools being used in audiology teaching. Lessons can be learned from other allied health professions, nursing or medical professions where experimental results of communication training programs consistently reveal positive outcomes (Bombeke et al., 2012; Helitzer et al., 2001; Kluge, Glick, Engleman, & Hooper, 2007; Parry, 2008; Wouda & van de Wiel, 2013; Yedidia et al., 2003).
In summary, to build a holistic and evidence-based understanding of patient-audiologist interactions, there are many pertinent areas of research yet to be explored. Given the complexity of human behaviour, both qualitative and quantitative methods are required to provide depth and breadth in future research (O’Cathain & Thomas, 2006). Importantly, to ensure that research contributes to evidence-based practice, patients’ perspectives, often referred to as their ‘voice’, must not be lost (Stewart, 2001).

7.6 Strengths and limitations

This thesis provides insight into potential reasons for the under-use of hearing services by older people in the community. It is in line with the recommendation of the Australian Government Senate inquiry into hearing health that “the Australian Government prioritise and fund research into the reasons for the under-use of hearing aids, and develop practicable strategies for hearing health practitioners to help overcome the under use in the community” (Senate Community Affairs References Committee, 2010, p. 20). Strengths and limitations of the current research program are acknowledged within the two studies that make up this thesis, and have been discussed in the relevant chapters. The following section summarises these strengths and limitations (also see Table 7.2) and expands on those that became apparent when the thesis was considered as a whole.

Eight main strengths or limitations were identified in Chapters 4, 5 and 6; three of the areas were relevant to both studies and the remaining five were specific the Study 2. An overall strength of this body of research was the attention given to inclusion of participants from services that represented both of the major funding systems in Australian audiology (i.e., government funding, termed elsewhere public funding and self funding, termed elsewhere private funding), as described in section 1.4 of this thesis. This maximises the applicability of results to other contexts where either service delivery mode is used. Overall, limitations of this body of work pertain to generalisability of the findings to other populations (e.g., other age groups, ethnicities, or communication occurring in different audiological
consultations). It is acknowledged that these populations should be considered for future research. Other potential limitations which relate to Study 2 specifically include the potential influence of audiologist and older adults being filmed and, the possible discrepancy between measured patient-centred communication and patient preferences. The latter limitation is raised given evidence to suggest that patients’ self-reports of how patient-centred a patient-practitioner interaction was, often does not correlate with results of observed interaction analyses (Street Jr, 1992). Lastly, the absence of a formal measure of outcome may be considered a limitation; however, relationships with outcomes were beyond the scope of this thesis’ aims. While no link can be drawn between communicative behaviours and outcomes, this body of work provides motivation to conduct further research.
### Table 7.2 Summary of strengths and limitations

<table>
<thead>
<tr>
<th>STRENGTH/LIMITATION</th>
<th>STUDY 1</th>
<th>STUDY 2A AND 2B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Representation of funding models</td>
<td>The research included both public and privately funded consultations. Thus, results are applicable to countries that use either of these systems.</td>
<td></td>
</tr>
<tr>
<td>Generalisability</td>
<td>Participant demographics (age, gender, ethnicity)</td>
<td>Nature of audiological consultation (initial compared to fitting or review)</td>
</tr>
<tr>
<td></td>
<td>• I.e., Predominantly Caucasian Australians, all experienced with AR may not be representative of preferences from different ages, ethnicities or seeking audiology help for the first time.</td>
<td>• I.e., Initial consultations may contain different communicative behaviours or, fail to contain behaviours that occur in other consultations.</td>
</tr>
<tr>
<td>Sampling bias</td>
<td>Older adults interviewed on experiences with audiological rehabilitation</td>
<td>Audiologists who agreed to participate in study</td>
</tr>
<tr>
<td></td>
<td>• I.e., Those who responded to research ads may have had particularly strong views or poor experiences.</td>
<td>• I.e., Those who participated in the study may have had a relationship with researchers, were asked by their employer or may have been more confident with their communication ability. Therefore, these results may represent a best-case scenario of communication in audiology consultations.</td>
</tr>
<tr>
<td>Effect of being filmed</td>
<td>Knowing that the consultation was being filmed may have influenced clinical and communicative behaviours.</td>
<td></td>
</tr>
<tr>
<td>Discrepancy between measured and patient preferences for PCC</td>
<td>Predetermined system for classifying behaviours as patient-centred may not capture the true preferences of all older adults attending audiology consultations</td>
<td>The second study initially had 84 filmed consultations, 21 of which were excluded for the history-taking analysis and 22 excluded for the counselling analysis (the video recording failed mid-counselling conversation in one consultation). Compared to other studies using the RIAS, this sample size is small.</td>
</tr>
<tr>
<td>Size of data set</td>
<td>The second study initially had 84 filmed consultations, 21 of which were excluded for the history-taking analysis and 22 excluded for the counselling analysis (the video recording failed mid-counselling conversation in one consultation). Compared to other studies using the RIAS, this sample size is small.</td>
<td>While findings are in line with research in other areas in health, no direct associations can be made between communication and clinical outcome.</td>
</tr>
<tr>
<td>Absence of outcome measurement</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
7.6.1 Data triangulation

A strength of this thesis is the triangulation of qualitative and quantitative research methods and the inductive nature in which the procedure and focus of Study 2 was developed. By combining these methods, additional insight into the problem at hand was achieved in comparison to using a single approach (Creswell & Plano Clark, 2007). In this thesis, Study 1 formed and strengthened the rationale for observing verbal communication in initial audiology consultations in Study 2a and 2b. As Study 1 provided insight into what older adults with hearing impairment considered to be patient-centred audiological rehabilitation, Study 2 was able to examine whether older adults received patient-centred audiological rehabilitation. Many of the behaviours important for providing patient-centred care, according to the findings from Study 1 and other areas of healthcare, can be observed through verbal communication between patient and practitioner (Grenness et al., 2014a; Ong, deHaes, Hoos, & Lammes, 1995). For this reason, Study 2 focussed on verbal audiologist-patient communication. The specific consultation filmed was inductively chosen based on the results of Study 1. The processes described in Study 1 are regularly observed in initial consultations (e.g., information exchange, decision-making and relationship building). In contrast, subsequent consultations are less likely to include each of these specific behaviours and are likely to contain a myriad of different technical procedures. Triangulation and integration of findings from Studies 1 and 2 ensured that the dimensions of patient-centred care investigated in initial audiology consultations were relevant to those who seek audiological rehabilitation care.

7.6.2 Participant groups represented in each study

An additional strength of this thesis was that by triangulating research methods, two groups of participants were represented in this body of work. Participants in Study 1 were older adults who owned hearing aids for at least one year. Each participant had at least one, and commonly multiple, experience(s) with audiologists. Each participant was therefore able to provide detailed insight into diverse interactions and compare these interactions to their experiences with
other health professionals. In essence, participants were able to reflect on their experiences with audiological rehabilitation and they were able to specify which behaviours and processes contributed to patient-centredness in their consultations.

The choice of participant sample in Study 1 concurrently introduced a limitation to the study. Since all interviewees owned hearing aids, the perspectives of older adults who sought audiological help and decided either against obtaining hearing aids or opted for another type of audiological rehabilitation were not represented. While participation in alternative audiological rehabilitation was not an exclusion criterion for this study, none of the interviewees reported undertaking communication programs, most likely because they are infrequently offered. This limitation was addressed in Study 2a and 2b where participants were adults attending their initial audiological consultation. Therefore, participants in Study 2 included adults who sought help for their hearing, irrespective of the options provided or decisions made.

The differing age-related inclusion criterion in Study 1 and Study 2 was a potential limitation to the triangulation of results. Study 1 participants were aged 60 or older, whilst Study 2 participants were aged 55 or older. The differing criterion occurred for recruitment reasons. To mitigate the risk that younger participants (aged 55-59) may have different preferences for patient-centred care relative to the findings from Study 1 (i.e., lifestyle and generational differences), the literature on patient-centredness preferences for participants of differing ages was reviewed. The literature revealed that a difference in preferences for patient-centred care may exist between ‘old-old’ adults (i.e., >80 years) compared to ‘young-old’ adults (i.e., 60-79 years); both groups were already represented in Study 1. Little difference was observed in preferences between middle aged adults and ‘young-old’ adults across the literature. Thus, it was concluded that inclusion of participants aged 55-59 in Study would not compromise the triangulation of the results.
7.6.3 Roter Interaction Analysis System (RIAS)

A strength of this thesis is that it contains the first published research using the RIAS in the context of audiology. This method was an appropriate choice to address the research questions of this thesis. As part of this body of work, the RIAS manual was successfully modified for use in an audiological rehabilitation context as the original manual was for medical consultations. The use of the RIAS was further strengthened by the achievement of excellent inter-rater and intra-rater reliability. Although the RIAS has the advantage of being extensively used and having excellent reliability, some limitations of the RIAS are acknowledged. Limitations that are most relevant to this body of work pertain to the predetermined classification of utterances and insensitivity to conversation turn-taking.

When using the RIAS, utterances are coded into predetermined, mutually exclusive codes based on content, form and affect. However, the mutual exclusivity of codes proved to be a limitation. For example, utterances that related to a specific topic (such as hearing aids) but had an affective tone (such as concern) were coded as concern and thus were not counted in the number of utterances related to hearing aids. Conversely, the coder was unable to document the content of the affective tone and thus, it was not possible to gain insight into the matter of concerns or other affective talk using the RIAS system alone. The second issue relating to coding was that a small number of codes lacked sensitivity to areas of importance in this study context. For example, utterances that related to financial contributions or funding schemes (e.g., “this hearing aid is $4000”) were classified as ‘lifestyle’, as were utterances that related to patient’s lifestyle behaviours (e.g., “I play golf”). Consequently, this limited the potential analysis of these utterances. The third limitation of the coding system related to the broad predetermined system for categorising codes. Using this system, frequent codes such as ‘agreement’, ‘back channel’ and ‘transition’, were included in, and dominated the proportion of utterances in two of the four categories (building a relationship and facilitation and patient activation and engagement). These codes are difficult to
interpret and are unlikely to represent specific communication skills. The rationale for this categorisation is not clearly stated in the RIAS literature, however, it is noted that some studies exclude these codes from analysis (for example, McCarthy et al (2013)). Future research using the RIAS in audiological rehabilitation should consider redefining codes relevant to the context and developing a novel categorisation.

Aside from the predetermined nature of codes and categories, the RIAS does not formally facilitate the documentation of responsivity and turn-taking. That is, the coder does not determine whether the audiologist responds to a patient’s utterance, or understood a patient’s cue. Additionally, the RIAS does not capture whether an audiologist’s utterance was directed at the patient or the companion. Had this information been documented at the time of coding, additional insight may have been gained regarding involvement of companions in initial audiology consultations. To obtain this level of detail from this data set and to answer these important questions, an alternative adjunct system of analysis, such as conversation analysis (Sandvik et al., 2002), would be required.

### 7.7 Conclusions

This thesis explored the meaning and nature of patient-centred care in audiological rehabilitation for older adults. The results highlight the importance of interactional skills, but caution that these skills are not routinely observed in initial audiological consultations. Specifically, initial audiology consultations take a practitioner- and device-centred approach, which is likely to have unfavourable implications for rehabilitation help-seeking and uptake. This thesis describes evidence that identifiable barriers exist to the wide-spread implementation of patient-centred care in audiology. Given the significant consequences and cost to the community caused by hearing impairment in older adults, this thesis suggests an imperative to value and promote the quality of patient-audiologist interactions, beyond technical skills, in the provision of quality audiological rehabilitation.
“Technical skills are assumed; interaction skills are valued”

Participant #3, Study 1 of this thesis
7.8 References


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Appendix A includes Human Research Ethics Committee approval from the three institutions where approval was sought: Royal Victorian Eye and Ear Hospital, The University of Queensland and Australian Hearing.
Appendix A-1 Royal Victorian Eye and Ear Hospital Human Research Ethics Committee approval letter

Eye & Ear Hospital

caring in every sense

September 6, 2010

Ms Caitlin Barr
Masters Student
Dept of Otolaryngology

Dear Ms Barr

Re: Human Research & Ethics Committee – NEW PROJECT
Research Project - Perceptions and preferences of older adults with acquired hearing loss and their audiologists in reference to their audiological consult

The Human Research & Ethics Committee considered the above project at its 2 September 2010 meeting. I am pleased to inform you that ethical approval was granted.

The project number 10964H was allocated, and this number should be used in all future correspondence. The following Researchers were approved:
- Ms Caitlin Barr
- A/Prof Gary Rance
- Prof Louise Hickson

The Human Research & Ethics Committee of the Royal Victorian Eye & Ear Hospital is constituted and operates in compliance with the National Health & Medical Research Council National Statement on Ethical Conduct in Human Research (2007).

The Committee requires an annual progress report, and must approve any proposed amendments to the protocol. All serious or unexpected adverse effects on participants or any unforeseen events that might affect continued ethical acceptability of the trial must be reported to the Committee.

The Committee requires you to preserve the confidentiality of information about research subjects, and to ensure the confidentiality of records. Information obtained for your research that is confidential or personal must not be used for purposes other than those specified in the approved protocol.

Ethical approval is valid from the date of this letter until 26 August, 2015. At the end of this period, or at the conclusion of the research, a final report is required along with a copy of any publications.

On behalf of the Committee, I wish you every success with your project.

Yours sincerely

Kerryn Baker
Secretary
Human Research & Ethics Committee
kerryn.baker@eyeandear.org.au
Telephone +61 3 9929 8525

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Infoline +61 3 9663 7203
www.veeh.vic.gov.au
ABN 81 892 814 977
Appendix A-2 The University of Queensland Behavioural and Social Sciences
Ethical Review Committee approval letter

THE UNIVERSITY OF QUEENSLAND
Institutional Approval Form For Experiments On Humans
Including Behavioural Research

Chief Investigator: Prof Louise Hickson
Project Title: Improving Clinical Pathways For Hearing Rehabilitation - 14/05/2012 - AMENDMENT
Supervisor: None
Co-Investigator(s): Dr Sharon Cameron, Dr Harvey Dillon, Dr Nerina Scarinci, Helen Glyde, Els Walravens, Paul Bunn, Caitlin Barr, Andrea Caposecco, Dr Carly Meyer, Dr Heidi Ham, Dr Adrian Fuente
Department(s): School of Health and Rehabilitation Sciences
Project Number: 2011000857
Granting Agency/Degree: The Hearing Cooperative Research Centre
Duration: 31st December 2021

Comments:

Name of responsible Committee:-
Behavioural & Social Sciences Ethical Review Committee
This project complies with the provisions contained in the National Statement on Ethical Conduct in Human Research and complies with the regulations governing experimentation on humans.

Name of Ethics Committee representative:-
Associate Professor John McLean
Chairperson
Behavioural & Social Sciences Ethical Review Committee

Date 17/5/2012  Signature
## Australian Hearing Human Research Ethics Committee

**APPROVAL FOR RESEARCH INVOLVING HUMAN SUBJECTS**

<table>
<thead>
<tr>
<th><strong>APPROVAL NUMBER</strong></th>
<th>AHHREC2012-13</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PROJECT NUMBER</strong></td>
<td>CRC R4.1.1A</td>
</tr>
<tr>
<td><strong>PROJECT TITLE</strong></td>
<td>Overcoming barriers to hearing rehabilitation in older adults - Prospective A: Evaluation of test appointments</td>
</tr>
<tr>
<td><strong>CLASSIFICATION</strong></td>
<td>Class 2: Project with low risk</td>
</tr>
<tr>
<td><strong>PRINCIPAL INVESTIGATORS</strong></td>
<td>Louise Hickson, Heidi Ham, Carly Meyer, Caitlin Barr, Els Walravens</td>
</tr>
<tr>
<td><strong>DATE APPROVED/RATIFIED</strong></td>
<td>4/12/2011</td>
</tr>
<tr>
<td><strong>APPROVAL METHOD</strong></td>
<td>Approved by the Chairman as a Class 2, low risk project and subsequently ratified by the Ethics Committee at their meeting of October 2012.</td>
</tr>
</tbody>
</table>

This approval is based on the information contained in the ethics application that was presented to the Chairman on 9/9/2011. A duplicate set of the documents is enclosed for your record.

In compliance with the "National Statement on Ethical Conduct in Human Research" (2007), Annual reporting to the Committee on progress of the project is required. This will happen in March or September of each year and you will be reminded near the time.

The Committee expects to be notified of any changes to the approved protocol or other issues that may have an impact on the ethics of the project either by means of the annual progress reports (checklists) or as an application for variation.

All future correspondence relating to the ethical aspects of this project must quote the above Approval Number.

Dr Tim Gainsford  
Operations & Finance Manager, NAL and AHHREC Secretary
Appendix B: Study 1 Topic Guide

Appendix B contains the interview topic guide used in Study 1.

Topic Guide: Study 1

Discuss prior to commencing:

- I will be recording the interview. This is so I can remember accurately what we talk about today.
- What we talk about today will remain confidential. While the interview will be transcribed, any details taken from the interview or writing about this research will be unidentifiable.
- If there is anything you don’t feel comfortable discussing, please say so. You are the expert in this interview and I will be following your lead, so if we stray into an area that you are not comfortable with we can move on as your request.
- I will be taking some notes while we talk, this is just to prompt me as we go.
- You are welcome to take a break at any stage and we can conclude the interview whenever you wish.

Initiating questions

- How would you describe your experiences with audiologists?
- What sorts of things did you consider important the interactions you had with audiologists?
- What sorts of things would help or hinder a person with your needs and wants, to be satisfied with the interaction?
- What does patient-centred care hearing care mean to you?
- If hearing care revolved around you and your needs, what would audiological rehabilitation look like?
- What, if anything, could have improved your hearing care?

Probes

Can you tell me more...? Can you give me an example...?
Why do you think that...? What made you think/feel that...
What do you mean by...?
Appendix C: RIAS modifications

Appendix C contains the modifications made to the RIAS manual for use in audiology consultations and examples of audiology utterances and their relevant RIAS codes. The RIAS manual could not be attached for copyright reasons.

Appendix C-1

<table>
<thead>
<tr>
<th>Example/topic utterance</th>
<th>Code chosen and tips for coding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any questions</td>
<td>?Opinion</td>
</tr>
<tr>
<td>Apology</td>
<td>Agree: does not indicate particular concern for other's feelings, “neutral”</td>
</tr>
<tr>
<td></td>
<td>Concern: ask for pardon: strong current issue.</td>
</tr>
<tr>
<td>Appointments</td>
<td>Orient: We'll make another appointment (when we go out to reception).</td>
</tr>
<tr>
<td></td>
<td>Gives Thera: we will make another appointment F and 2F</td>
</tr>
<tr>
<td></td>
<td>C-Med/Thera: book appointment if you have any trouble (up to the client to do this or not.)</td>
</tr>
<tr>
<td>Approve</td>
<td>Approve: person present</td>
</tr>
<tr>
<td></td>
<td>Compliment: person not present, general</td>
</tr>
<tr>
<td>Audiogram</td>
<td>Gives Med: even if e.g. using vowels or sounds to explain.</td>
</tr>
<tr>
<td>Claims, OHS rules, HSC</td>
<td>Gives Lifestyle</td>
</tr>
<tr>
<td></td>
<td>Orient: When you go out to the front, you will sign a form.</td>
</tr>
<tr>
<td>Comfort</td>
<td>?Reassurance: Does that feel ok/comfortable?</td>
</tr>
<tr>
<td></td>
<td>Concern: Let me know if that’s not comfortable. Sorry, it’s a bit tight.</td>
</tr>
<tr>
<td></td>
<td>Orient: This quite tight on the head…</td>
</tr>
<tr>
<td></td>
<td>R/o: …but it won’t be there for long.</td>
</tr>
<tr>
<td>Category</td>
<td>Description</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Disagree</td>
<td>Disagree person present</td>
</tr>
<tr>
<td></td>
<td>Crit: person not present</td>
</tr>
<tr>
<td>GP letter</td>
<td>?Permission: A requests permission to send info.</td>
</tr>
<tr>
<td></td>
<td>Gives Thera: explaining to write and why.</td>
</tr>
<tr>
<td></td>
<td>?Service: Can you recommend an ENT?</td>
</tr>
<tr>
<td></td>
<td>?Other: what’s your doctor’s name? How do you spell your doctor’s name?</td>
</tr>
<tr>
<td></td>
<td>Which surgery does your doctor work at?</td>
</tr>
<tr>
<td>GP name</td>
<td>Other: spelling, name of GP, usually [?]Other</td>
</tr>
<tr>
<td>Hearing aids</td>
<td>Thera,</td>
</tr>
<tr>
<td></td>
<td>Med: history with hearing aids</td>
</tr>
<tr>
<td></td>
<td>TopUp: Gives Other</td>
</tr>
<tr>
<td></td>
<td>Gives Other: affordability of HAs, private healthcare cover</td>
</tr>
<tr>
<td></td>
<td>?P/S: How do you feel about trying hearing aids?</td>
</tr>
<tr>
<td></td>
<td>?Opinion: which colour hearing aid would you like, which style of HA would you like?</td>
</tr>
<tr>
<td></td>
<td>Are you happy to try a hearing aid?</td>
</tr>
<tr>
<td></td>
<td>C-Med/Thera: hearing aid recommendations, top-up recommendations; future, explanation on how to carry out instructions. Even negative: “don’t have to wear HAs all the time”; “I recommend these hearing aids”</td>
</tr>
<tr>
<td></td>
<td>C-P/S L/S: communication strategies; stigma</td>
</tr>
<tr>
<td></td>
<td>?Reassure Do you think I need a hearing aid?</td>
</tr>
<tr>
<td>Impression taking</td>
<td>Orient: explaining what will happen</td>
</tr>
<tr>
<td></td>
<td>?Reassure: checking if client is ok</td>
</tr>
<tr>
<td></td>
<td>Gives Thera: that looks good (i.e. imp is good).</td>
</tr>
<tr>
<td>Instructions</td>
<td>Orient: explaining what will happen in the near future. Incl e.g. START MASKED BC L-Stop coding <em>Can you move forward for me, just a second.</em></td>
</tr>
<tr>
<td></td>
<td>?Other: Client asking procedural questions <em>(What would you like me to do?)</em></td>
</tr>
<tr>
<td>Paperwork</td>
<td>Other if NOT OHS</td>
</tr>
<tr>
<td>Personal info</td>
<td>Personal: introduction, chatter</td>
</tr>
<tr>
<td></td>
<td>Self-Dis: personal experience with relevance to client</td>
</tr>
<tr>
<td>Questionnaire</td>
<td>Check [?]Med/ [?]Med</td>
</tr>
<tr>
<td>Single utterance</td>
<td>word</td>
</tr>
<tr>
<td>------------------</td>
<td>------</td>
</tr>
<tr>
<td>BC: encourages cl to continue, shows A is interested, listening actively</td>
<td></td>
</tr>
<tr>
<td>Agree: A takes the floor after this.</td>
<td></td>
</tr>
<tr>
<td>Trans: concluding or changing topic.</td>
<td></td>
</tr>
<tr>
<td>?Understand e.g. OK?</td>
<td></td>
</tr>
<tr>
<td>?Bid: request for repetition</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tactics</th>
</tr>
</thead>
<tbody>
<tr>
<td>C-Med/Thera. (Can be neg., e.g. &quot;you wouldn’t have to wear them all the time).</td>
</tr>
<tr>
<td>C-L/S, P/S: e.g. make sure they have your attention before they start a conversation with you.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Test instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orient</td>
</tr>
<tr>
<td>Gives-Med: how test works (e.g. BC)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>“Thank you”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approve</td>
</tr>
<tr>
<td>Agree</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Wax drops</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gives Thera</td>
</tr>
<tr>
<td>C-Med/Thera: go see GP for wax removal (up to cl to do this or no)</td>
</tr>
</tbody>
</table>
### Appendix C-2

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Audiological examples</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Personal</strong></td>
<td>Greetings, returns of greeting, chatter Override “agree” etc when in opening segment.</td>
<td></td>
</tr>
<tr>
<td><strong>Laughs</strong></td>
<td>Laugh, tell jokes (incl morbid)</td>
<td></td>
</tr>
</tbody>
</table>
| **Concern** | Concern, worry on strong and current issue, negative emotional description, ask for pardon, self-criticism | I can't hear my grandchildren in the next room anymore.  
(Time to make a decision about hearing aids.)Client: ‘hmm, I think I want to talk to my husband/wife about this decision. |
| **R/O** | Reassures/Optimism: encouragement, reassurance, prognostic statements, positive emotional description, awareness of other's feelings | “That was pretty painless”, after a hearing test.  
I don't mind if you take your time to think about this.  
You being here is a good first step. |
<p>| <strong>Approve</strong> | Show approval directly to person present (positive feeling, compliment) “Good” if implying client responded correctly to request. Thank you, You're welcome, and “Nice to have met you” when stated at or near the end of the interview. | I'll have a look in your ears. Client turns head, aud says “Thank you”. |
| <strong>Comp</strong> | Gives compliment: person not present. General.                              |                                                                                                             |
| <strong>Disagree</strong> | Disapproval to person present: sarcasm, protest, defensive,                  |                                                                                                             |</p>
<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
<th>Example 1</th>
<th>Example 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crit</td>
<td>Criticism, towards person <strong>not</strong> involved, general sarcasm, defensive statements.</td>
<td>My husband says I can’t hear, but he mumbles. People mumble.</td>
<td></td>
</tr>
<tr>
<td>Emp</td>
<td>Empathy statements; picking up on emotional state of other person during visit.</td>
<td>I understand you are upset you can’t hear your grandchild.</td>
<td></td>
</tr>
<tr>
<td>Legit</td>
<td>Legitimizing statements, normalize other’s actions/emotions/thoughts. Normalise OWN’s actions/emotions/thoughts.</td>
<td>No good wearing hearing aids when I was still working.</td>
<td></td>
</tr>
<tr>
<td>Partner</td>
<td>Alliance (help, support, decision making, dev. of plan)</td>
<td>Maybe we need to wait until you’re ready... I think we’re not at the stage where you’re ready for a hearing aid yet.</td>
<td></td>
</tr>
<tr>
<td>Self-Dis</td>
<td>Revealing non-public, personal experience with <strong>relevance</strong> to client.</td>
<td>I have a husband that does that (talking while walking out of the room)</td>
<td></td>
</tr>
<tr>
<td>?Reassure</td>
<td>Questions of concern that express need to be reassured/encouraged. Includes questions during procedure, asking for reassurance to continue.</td>
<td>Is my hearing going to get worse? Does that feel comfortable? (BC on head) (While putting testing equipment on) “Does this hurt?”</td>
<td></td>
</tr>
<tr>
<td>Agree</td>
<td>Agreement or understanding, “neutral” concessions and apologies, agreement in negative form. ‘Thank you and sorry’ when not emotional Use for BC for client (does not necessarily mean understanding!).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BC</td>
<td>Encourages cl to continue, shows A is interested, listening actively.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Trans**
change topic, only if separated by ≥1s (if <1s, part of next utterance)

**Orient**
Immediate instructions, procedural and admin.
If client asks Orient questions ⇒ ?Other

**Checks**
**IMMEDIATE** re-state or reflect info: paraphrase, repetition, restatement of contextual fact, feedback of essence of verbal message, finishing other’s statement; restatement from earlier in appointment, statements reviewing history/common knowledge (no new info), NOT reinforcement of what was said before (ti Gives...)
When checking questionnaire information, code as Med
“Do I get it?”

**?Understand**
Quick check to see if info was followed or understood.
“Do you get it?”

**?Bid**
Request repetition (usually because of hearing difficulty!)

**?Opinion**
Includes: preference, choice, expectations, very broad probe of info
Are you happy to try hearing aids?
Are you ready?
Which colour/style would you like?

**?Permission**
A asks for permission to give info or proceed, e.g. letter to GP.

**Gives-Med**
Statement of fact/opinion; symptoms, diagnosis, prognosis, test results, background (incl passed work exposure and comp when now retired), fam history, spelling of name (client).
Discussion and information on
<table>
<thead>
<tr>
<th>Topic</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hearing loss, tinnitus, balance</td>
<td></td>
</tr>
</tbody>
</table>
Explanations of audiograms and related tests |
| Hearing aid history | 
Have you ever had tinnitus? |
| Do you have a family history of hearing loss? |

<table>
<thead>
<tr>
<th>Type</th>
<th>Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Med</td>
<td>Closed-ended questions about med and fam history, treatment, symptoms, phys condition.</td>
</tr>
<tr>
<td>?Med</td>
<td>Open-ended questions, even though answer is just yes/no, was asked as open question to ask for more info; probing; sometimes indicated by voice inflection.</td>
</tr>
<tr>
<td>?Med</td>
<td>Do you have difficulty hearing or? (ALL ?Med)</td>
</tr>
<tr>
<td>Do you have trouble hearing?</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Givs-Thera</td>
<td>fact/opinion on future and information on past: hearing aids</td>
</tr>
<tr>
<td>FS-TU, features, limits, acclimatisation, HA adjustment in xxx, HA replacement or refit</td>
<td></td>
</tr>
<tr>
<td>Explanations and information on hearing aids and ALDs</td>
<td></td>
</tr>
<tr>
<td>Explanations and information about wax drops</td>
<td></td>
</tr>
<tr>
<td>Discussion of report to be written for the GP</td>
<td></td>
</tr>
<tr>
<td>Taking an impression (whether it is good or not)</td>
<td></td>
</tr>
<tr>
<td>“I'll give you a call next week”</td>
<td></td>
</tr>
<tr>
<td>Information on previous hearing aids: Gives-Med (part of history)</td>
<td></td>
</tr>
<tr>
<td>We will see you in two years for another hearing test.</td>
<td></td>
</tr>
<tr>
<td>A hearing aid has 16 channels and noise reduction features.</td>
<td></td>
</tr>
<tr>
<td>Hearing aids come in many different styles.</td>
<td></td>
</tr>
<tr>
<td>A hearing aid will help you in noise.</td>
<td></td>
</tr>
<tr>
<td>(Ear Impression taken)... this looks good!</td>
<td></td>
</tr>
<tr>
<td>I'll give you a call by the end of the week to see what you have decided</td>
<td></td>
</tr>
<tr>
<td>You can get rid of this wax by getting Waxol from the pharmacist.</td>
<td></td>
</tr>
<tr>
<td>I will write a letter to your GP because of your hearing results today.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type</th>
<th>Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>[?]Thera</td>
<td>Closed-ended questions on “Thera”</td>
</tr>
<tr>
<td>Will I have to wear my hearing aid all the time?</td>
<td></td>
</tr>
<tr>
<td>?Thera</td>
<td>Open-ended questions on “Thera”</td>
</tr>
<tr>
<td>(How are you going with the hearing aid?)</td>
<td></td>
</tr>
<tr>
<td>Question Type</td>
<td>Description</td>
</tr>
<tr>
<td>---------------</td>
<td>-------------</td>
</tr>
<tr>
<td><strong>Gives-L/S</strong></td>
<td>fact/ opinion relating to lifestyle, family and home situations, work or employment, health habits and self-care issues, daily routine regimen, general medical condition and health regimen, affectively neutral, NO psychosocial concerns. Incl. talking about Other people’s hearing aids.</td>
</tr>
<tr>
<td><strong>[?]L/S</strong></td>
<td>Closed-ended questions in function of appointment (chatter = personal)</td>
</tr>
<tr>
<td><strong>L/S</strong></td>
<td>Open-ended questions lifestyle</td>
</tr>
<tr>
<td><strong>Gives-P/S</strong></td>
<td>Psychosocial concerns or problems: stress, feelings, emotions, general state of mind, philosophical outlook, values and beliefs. Incl. depression. About the past.</td>
</tr>
<tr>
<td><strong>[?]P/S</strong></td>
<td>Closed-ended questions, incl. emotions, concerns, stress, personal likes or dislikes.</td>
</tr>
<tr>
<td><strong>P/S</strong></td>
<td>Open-ended questions</td>
</tr>
<tr>
<td>Category</td>
<td>Text</td>
</tr>
<tr>
<td>-------------------</td>
<td>----------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| psychosocial: invitation to talk | feeling more stressed?  
How does the tinnitus make you feel?  
How do you feel about your hearing? |
| Gives-Other       | Fact or opinion about clinic paperwork, exam or study procedures, neutral statements about the study itself.  
Spelling of GPs name (to aud).  
Discussion about a customer care charter or privacy statement  
Discussion about the study  
Cost of hearing aids, top-up; Insurance programs and payouts  
OHS, vouchers, HSC |
| Gives-Other       | Hearing aids can cost up to $10,000  
You’re entitled to government subsidized hearing aids as a pensioner.  
I have private health insurance. |
| [?]Other          | Closed-ended questions other;  
incl clients’ question on what to do next (orient from client in question form) |
| [?]Other          | Where would you like me to sit?  
How much do hearing aids cost? |
| ?Other            | Open-ended questions other |
| C-Med/Thera       | Recommendation/discussion about USE of HA or ALD.  
Recommendation discussion about acclimatization  
incl future apptm and tests, explanations of how to carry out instructions.  
! Up to client to go ahead with appointments, e.g. “If you have any trouble, please come and see us”.  
! Wearing HAs is a lifestyle choice, but code as “thera” because it’s about hearing aids. |
|                   | We need to monitor it. We should regularly check your hearing.  
I recommend a HA in both ears/ because you have a HL in both ears / and you will go better with 2. (3x)  
Most people go for that colour.  
I recommend that you get this type of hearing aid.  
See your GP to get the wax out.  
I want you to take ear drops three times a day for 10 days. You can get it at the pharmacy across the street. |
They'll tell you in the lobby where to go. (3 utterances)

Wear your hearing aid every day.

I’d like you to wear a hearing aid at least 5 hours a day.

**C-L/S-P/S**  Communication strategies; Hearing protection; stigma

Counsel LS/PS: involves the patient’s volition or control of habits general health promotion and prevention, incl. directive statements, persuasive statements with OTHER person’s experience

(⇔ A’s experience: Self-Disclosure)

**?Service**  Client-initiated requests for services, credentialing, treatment, test, or referral; t.i. appeal to the physician’s authority.

Can you recommend an ENT?

**Unintel**  Unintelligible utterances
Author/s:
Grenness, Caitlin Mae

Title:
Patient-practitioner interactions: older adults and their audiologists

Date:
2014

Persistent Link:
http://hdl.handle.net/11343/42087

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