Author/s:
William, Gerard

Title:
Building the evidence-base for a top-down approach to the implementation of person-centred care in Australian hearing rehabilitation organisations

Date:
2020

Persistent Link:
https://hdl.handle.net/11343/240385

Building the evidence-base for a top-down approach to the implementation of person-centred care in Australian hearing rehabilitation organisations

GERARD WILLIAM

BCom(Hons.), MAud(Dist.)

ORCID: 0000-0002-6423-5293

Submitted in total fulfilment of the requirements of the degree

of Doctor of Philosophy

January 2020

Department of Audiology and Speech Pathology

The University of Melbourne

Produced on archival quality paper

orrcid.org/0000-0002-6423-5293

Field of Research Codes
119999 Medical and Health Sciences not elsewhere classified
110321 Rehabilitation and Therapy (excl. Physiotherapy)
111709 Health Care Administration

Socio-Economic Objectives (SEO) Code
920107 Hearing, vision, speech and their disorders (2000)
730111 Hearing, vision, speech and their disorders (1998)

Research Fields, Courses and Disciplines (RFCD) Code
321025 Rehabilitation and Therapy: Hearing and Speech

Australian and New Zealand Standard Industrial Classification (ANZSIC) Code
8639 Health Services n.e.c.

Abstract

Background

Previous studies suggest person-centred care (PCC) might improve adult hearing rehabilitation uptake and use. Despite this, PCC has not been widely implemented within hearing rehabilitation organisations (HROs) in Australia. To date, research has not focused on the criteria used by senior managers, who are ultimately responsible for decisions on implementation of clinical practice within their HRO, to evaluate outcomes of providing PCC or its impact on organisational success. Better understanding of these criteria may be relevant to understanding the current low uptake of PCC in clinical practice and how this might be increased.

Aims

To investigate how senior managers of HROs in Australia define and evaluate: i) success; and ii) PCC; and iii) to identify their perceived facilitators of and barriers to PCC evaluation. Following these, iv) to evaluate the organisational-valued outcomes of a person-centred intervention delivered to graduate intern audiologists.

Design

We used a pragmatic, exploratory sequential mixed-methods design. In the qualitative first phase, we conducted semi-structured interviews with sixteen senior managers from twelve HROs across Australia. For the quantitative second phase, a non-randomised cohort comparison trial was conducted within a large HRO between two groups of interns and their clients. Intervention group interns received training and support to use psychosocial communication with their clients in addition to the standard training received by control group interns. Organisational-valued client, clinician and financial outcomes were identified from the first phase. Sixteen intervention and eleven control group interns completed surveys three months after commencing their internships. Clients (intervention n = 235, control n =

181) seen in the following three months had their appointment details analysed and received postal surveys two months after their initial appointment.

Results

In phase one, senior managers defined success as the crucial interplay of client success and financial success. This interaction was influenced by staff factors, the organisation's ethos and the senior manager's role. Financial success was evaluated more rigorously than client success, with client success assessed primarily in clients who adopted hearing aids. PCC was defined well but not evaluated by senior managers due to beliefs that their clinicians and clinical processes were effective in providing PCC based on existing client and financial successes.

In phase two, intervention group interns reported significantly greater intention to stay with the organisation. Intervention group clients adhered significantly more to clinician recommendations of hearing aids and reported greater benefit with hearing aids in social situations. Control group clients were significantly more likely to recommend hearing aids and the clinic to friends and family. PCC evaluation measures did not reveal significant overall differences between groups. Non-significant results may be clinically relevant as device technology levels and uptake were higher for the intervention group for fewer total appointments.

Implications

Senior managers of HROs valued PCC in success but did directly evaluate it. Clinically validated PCC evaluation tools are still needed. The psychosocial communication intervention was associated with benefits to the HRO that were valued by senior managers, but further investigation is warranted to assist the uptake of PCC in HROs.

Declaration

This is to certify that:

(i) The thesis comprises only of my original work towards the Doctor of Philosophy degree except where indicated in the Preface,

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

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

_____

Gerard William

January 2020

Acknowledgements

Like many before me, I stand on the shoulders of giants. (Figuratively of course, as I have bad knees). I wish to thank my supervisors, Dr Caitlin Barr, Dr Carly Meyer and Prof Robert Cowan. Thanks for believing in me and for guiding me in this fruitful endeavor, and for challenging me to become a better researcher, thinker and writer. Caitlin, I appreciate all you have done for me. You have given me this opportunity and always inspire me to action in audiology. Carly, I wish to honour your consistent commitment to long-distance supervision, from the sunny climes of Brisbane to the posh world of London. Bob, thank you for all your encouragement and support, and for the stories and quips about New Zealand. I wish to thank my advisory committee for agreeing to support me throughout this journey – thank you Prof Richard Dowell, Dr Erik Lundmark and Ms Michele Barry. A special acknowledgement too for Prof Louise Hickson and Dr Tony Coles for encouraging me to take up this PhD. Thanks

also to the HEARing CRC and the Australian Government for generously funding this greatly needed research to reduce the negative impact of hearing loss. My thanks extend to all HEARing CRC members, especially xR 3.3.5 members Dr Ennur Erbasi and Ms Nicole Conway, who made this thesis possible. Thank you also to all research participants and to those who supported our recruitment efforts.

Thank you to my fellow PhD students for constant support and encouragement. Those who went ahead of me and those who joined me later – I value our conversations and thank you for your vulnerable sharing. I have learnt so much from each one of you.

The University of Melbourne has provided me with opportunities for teaching and clinical work. Special thanks to the "Rehab team" (and the World's Best Audiologist™) for keeping it real. Thanks also to the rest of the clinical and administrative team members. I would also like to thank others in the Department who have assisted me over the years, and to Josie Smith at MDHS for responding to my many queries. Thanks (and apologies) to my students over the years have also challenged me on what it means to be a good audiologist. Not least, I thank all the clients who I have encountered and who also affirmed why this research is important. The *skin in the game* of working clinically certainly enhanced my research views.

To my former colleagues especially Annamarie, D-marie, Sarah and Nicola - you guys have been amazing to me throughout this journey. To former managers - thank you for giving me opportunities to extend my clinical skills. To my audiology classmates and former educators from New Zealand - this is for us, as we continue to punch above our weights.

To my family and friends in Australia, New Zealand and around the world – thank you all. Thanks Dad and Mum for loving me, supporting me and believing in me. Thanks Chay Chay and Ciaran (Dr Moore) for your support and for providing us with three wonderful boys who mean so much to us (Dominic, David and Damian). Thanks Mark (Dr

William). Thanks to Jocelyn for your loving, encouraging and prayerful support. Thanks Kate and Brad and for our beautiful nieces and nephews - Asha, Stella and Nico. Thank you also Christie for your offers of help, and to Jeremy, Shaun and Christina (and Lenny), and Mikaela. Thanks to our local family of Bobby and Gloria who have been amazing, and for Abigail and Phoebe who bring so much joy into our lives. This PhD has taken us further than imagined: Aunty Ju and Uncle Jit – thanks for the break in London; and Uncle Peter and Aunty Kunal – thanks for our time in Durham. Thanks also to all the family and friends who have gone before us, and to the many who have supported us.

Special mention to the DoJ Community and the MGLs - thanks for all the prayers and love. (There's far too many of you to name here!) Thanks also to my Blackburn Newhope FC clubmates. Special acknowledgement to Gold level sponsors[1]: GTT's Dr John Ryan and Mr Matthew Willard, G&D's Dion Jurac, DoJ-DC's co-founder Alexandra Wedd, and my legal counsel Arpana Raj.

My Jane. I love you. Thank you. You have my heart. No one but you could have supported me so closely and ably through all of this. This is your victory too.

This personal journey has been one of intense personal growth, of letting go, of learning new things, and being stretched in uncomfortable ways. In studying a topic that recognises the humanness of the other, I grew in my own ability to relate. I hope that this continues to impact how I interact with my clients, students, family, friends and various people I encounter.

Finally, I can only do all things through Christ Jesus who strengthens me (Phil 4:13); for when I am weak, then I am strong (2 Cor 12:10). *Totus tuus ego sum, et omnia mea tua sunt. Accipio te in mea omnia. Praebe mihi cor tuum, Maria. Ad maiorem Dei gloriam. Amen.*

[1] Not actual sponsors.

Preface

Statement of contributions by others to the thesis as a whole

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. There was no third-party editorial assistance obtained in the preparation of this thesis. This research was funded as part of the HEARing Cooperative Research Centre's (CRC) xR 3.3.5 project and was also supported by an Australian Government Research Training Program Scholarship. The HEARing CRC was established under the Australian Government's CRC Program. The CRC Program supports industry led collaborations between industry, researchers and the community. An element of the HEARing CRC's research program was to ensure individualised solutions to hearing healthcare. As a component of this theme, person-centred care was a core aspect as it represents true individualisation of service delivery. This thesis was focused on evaluating how senior managers make decisions about the implementation of modes of service such as person-centred care, with the ultimate aim of project xR 3.3.5 to find better approaches to maximising person-centred care uptake in Australian clinics.

For the first phase of this research, I was primarily responsible for the concept and design of the studies, gaining ethical approval, participant recruitment, data collection, analysis and interpretation. This work has been presented at several national and international conferences and a selection of my results was published by the non-peer reviewed Hearing Journal in February 2019. I was assisted in all these activities by my thesis supervisors, Dr Caitlin Barr, Dr Carly Meyer and Prof Robert Cowan.

Research in the second phase was part of a broader study to evaluate a person-centred care intervention. HEARing CRC xR 3.3.5 project members were responsible for enrolling the participating organisation and for the design and implementation of the intervention. I was primarily responsible for the final choice of outcome measures, participant recruitment,

data collection, data analysis and writing up the results. I contributed to obtaining ethics approvals for this project. I was assisted in these activities by my thesis supervisors and xR 3.3.5 project members Dr Ennur Erbasi and Ms Nicole Conway. Dr Sue Finch of the University of Melbourne Statistical Consulting Centre assisted with planning prior to data collection and suggestions for data analysis.

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

William, G., Barr, C., Meyer, C., & Cowan, R. (2019). Are you providing person-centered hearing care? *The Hearing Journal, 72*(2), 18-21. Doi: 10.1097/01.HJ.0000553579.849.72.47

Posters relevant to the thesis

William, G., Barr, C., Meyer, C., & Cowan, R. (2018). *How senior managers of hearing rehabilitation organisations define and evaluate success.* Poster presented at the 2018 Audiology Australia National Conference, Melbourne.

Conference presentations relevant to this thesis

Note: Presenter denoted by underline

William, G., Barr, C., Meyer, C., & Cowan, R. (2017). *Developing a business case for patient-centred care in hearing rehabilitation organisations.* Paper presented at the 2017 University of Melbourne School of Health Sciences Graduate Research Colloquium, Melbourne.

William, G., Barr, C., Meyer, C., & Cowan, R. (2018). *How senior managers of hearing rehabilitation organisations define and evaluate success.* Paper presented at the 2018 Audiology Australia National Conference, Melbourne.

Herbert J. Oyer Student Award Winner: William, G., Barr, C., Meyer, C., & Cowan, R. (2018). *Exploring senior management perspectives to improve person-centred care implementation in hearing rehabilitation organizations.* Paper presented at the 2018 Academy of Rehabilitative Audiologists Institute, Pittsburgh, PA.

William, G., Barr, C., Meyer, C., & Cowan, R. (2018). *How success is defined and evaluated by senior managers of hearing rehabilitation organisations.* Paper presented at the 34th World Congress of Audiology Conference, Cape Town, South Africa.

William, G., Barr, C., Meyer, C., & Cowan, R. (2018). *How does your organization know if they provide person-centred care? An exploration of current evaluation practice.* Paper presented at the 34th World Congress of Audiology Conference, Cape Town, South Africa.

William, G., Barr, C., Meyer, C., & Cowan, R. (2018). *The facilitators and barriers to clinical evaluation of person-centred care in hearing rehabilitation organisations.* Paper presented at the 2018 University of Melbourne School of Health Sciences Graduate Research Colloquium, Melbourne

William, G., Barr, C., Meyer, C., & Cowan, R. (2019). *Organisational success and person-centred care: Criteria for its evaluation used by senior managers of hearing rehabilitation organisations.* Paper presented at the 2019 New Zealand Audiological Society Annual Conference, Queenstown, New Zealand.

List of Figures

List of Tables

List of abbreviations and acronyms

ALD	Assistive Listening Device
BCW	Behaviour Change Wheel
CFO	Chief Financial Officer
COM-B	Capabilities, Opportunities and Motivations that affect Behavior change
COSI	Client Oriented Scale of Improvement
CROS	Contralateral Routing of Signal device
ENT	Ear, Nose & Throat Specialist (Otorhinolaryngologist)
GP	General Practitioner (Primary Care Physician)
HA	Hearing aid
HAUQ	Hearing Aid User's Questionnaires
HRO	Hearing rehabilitation organisation
HSP	Hearing Services Program
IOI-HA	International Outcome Inventory for Hearing Aids
JSE	Jefferson Scale of Empathy
JSPPPE	Jefferson Scale of Patient Perceptions of Physician Empathy
MPOC-A	Measure of Process of Care for Adults

NPS	Net Promoter Score
OHS	Office of Hearing Services
PCC	Person-centred care
PCHR	Person-centred hearing rehabilitation
PIH	Partners in Healthcare scale
PPOS	Patient-Practitioner Orientation Scale
RQ	Research Question
SM	Senior manager(s)
STEM	Science, technology, engineering and mathematics
VCS	Voice Climate Survey

Qualitative research participant denotations

S	Small hearing rehabilitation organisation
M	Medium hearing rehabilitation organisation
L	Large hearing rehabilitation organisation
G	Government-owned hearing rehabilitation organisation
N	Not-for-profit hearing rehabilitation organisation
U	University-run hearing rehabilitation organisation

Table of Contents

1 General Introduction

The incidence and impact of hearing loss is expected to rise as Australia's population ages (GBD, 2016; Hearing Health Sector Committee, 2019; World Health Organization, 2018). The World Health Organization (WHO) estimates that 466 million people (approximately 5%) worldwide have disabling hearing loss[2] (World Health Organization, 2019). Older adults are disproportionally affected by hearing loss (Chia *et al.*, 2007; Loughrey *et al.*, 2018; Palmer *et al.*, 2019; Punch, Hitt & Smith, 2019; Simning *et al.*, 2018), and are more likely to acquire hearing loss due to the effects of ageing on the cochlea but also from accumulated exposure to noise and ototoxic drugs (Cunningham & Tucci, 2017; Hederstierna & Rosenhall, 2016). Left untreated, hearing loss can have many health and psychosocial impacts on the individual (Brink & Stones, 2007; Loughrey *et al.*, 2018; Mikkola *et al.*, 2015; Palmer *et al.*, 2019; Punch, Hitt & Smith, 2019; Simning *et al.*, 2018). The psychosocial impacts of hearing loss extend beyond biological health considerations by incorporating psychological (including thoughts, emotions and behaviours) and social (including economic, environmental and cultural) factors (DiLollo, 2014) that can negatively affect communication and relationships with communication partners including friends, families and colleagues (Barker, Leighton & Ferguson, 2017; Cunningham & Tucci, 2017; Vas, Akeroyd & Hall, 2017). The psychosocial impacts of hearing loss are expected to be worse in older adults and their communication partners. In two large sample studies from Canada, older adults with greater self-reported hearing difficulty perceived their participation in group activities as more restricted and were more likely to infrequently participate in group activities compared to older adults who did not report hearing difficulties (Mikkola *et al.*, 2015), while another study found that hearing impairment can impair the linguistic communication of older adults

2 The World Health Organisation (2019) considers disabling hearing loss to be average hearing thresholds in the better ear greater than 40 dB for adults and 30 dB for children.

which was in turn associated with poorer mood and social engagement (Brinks & Stones, 2007).

Age-related hearing loss typically presents as a bilateral hearing loss in the higher frequencies which can impair one's ability to understand speech and may be subjectively perceived by the individual as other people "mumbling" (Contrera *et al.*, 2016; Cunningham & Tucci, 2017). Hearing loss that cannot be treated using medical or surgical means is typically rehabilitated using hearing aids sometimes in conjunction with broader hearing rehabilitation options including individual or group counselling, auditory training or communication programmes (Laplante-Lévesque, Hickson & Worrall, 2010; McCarthy & Schau, 2008). In particular, hearing aids have been shown to effectively manage the effects of hearing loss (Dawes *et al.*, 2015; Gopinath *et al.*, 2012; Ferguson *et al.*, 2017): a Cochrane review concluded that hearing aid use was effective at improving the listening ability of older adults with mild to moderate hearing loss and health-related quality of life across general health and hearing measures (Ferguson *et al.*, 2017). Hearing aids are widely available throughout Australia under various funding models for individuals with mild to severe hearing loss (Hearing Health Sector Committee, 2019). Despite the widespread availability and effectiveness of using hearing aids, hearing aid uptake and usage rates are low. The Australian Blue Mountains Study found that only 31% of adults over 60 years old with bilateral hearing impairment reported having a hearing aid (Chia *et al.*, 2007). Of the older adults who had a hearing aid, only 77% of these adults reported that they usually used their hearing aid, implying that only 24% of adults with bilateral hearing impairment used their hearing aids (Chia *et al.*, 2007).

Research into adult hearing rehabilitation suggests that non-audiological factors, such as clinician behaviours considered to be person-centred, can improve hearing rehabilitation uptake and use (Aazh, 2016; Aazh & Moore, 2017; Dawes, Maslin & Munro, 2014; Kundsen

et al., 2013; Grenness *et al.*, 2014a, 2014b; Meyer, Scarinci & Hickson, 2019; Solheim *et al.*, 2018; Poost-Foroosh *et al.*, 2011, Poost-Foroosh, Jennings & Cheesman; 2015). A study exploring the views of thirteen adults who were recently recommended hearing aids and ten audiologists found that the three most important client-clinician interaction factors expected to improve hearing aid uptake that the clinician ensures the comfort of the client, that clinicians understand and meet client needs, and the person-centred traits and action of the clinician (Poost-Foroosh *et al.*, 2011). In another study, qualitative interviews with thirty-four adults with hearing impairment identified that the active participation of clients in their hearing rehabilitation journey can improve hearing device uptake, use, benefit and satisfaction (Knudsen *et al.*, 2013). Although these results suggest that person-centred approaches has a critical function in improving hearing device uptake and use, the outcomes of providing person-centred care are still to be empirically investigated.

While audiologists in Australia have reported preferences for providing person-centred care (e.g., Laplante-Lévesque *et al.*, 2014), a corpus of qualitative research that analysed video-observations of audiology consultations involving sixty-three older adults and seventeen of their companions has provided evidence that person-centred hearing rehabilitation is not comprehensively practiced in Australian hearing rehabilitation organisations (Ekberg, Grenness & Hickson, 2014, 2017; Ekberg *et al.*, 2014, 2015; Grenness *et al.*, 2015a, 2015b; Sciacca *et al.*, 2017). The twenty-six participating audiologists had difficulties implementing person-centred behaviours such as shared decision making, using psychosocial communication with clients, involving clients and their family members, building rapport and providing comprehensive information to clients during the history-taking, diagnosis and management planning phases of audiology consultations (Ekberg, Grenness & Hickson, 2014, 2017; Ekberg *et al.*, 2014, 2015; Grenness *et al.*, 2015a, 2015b;

Sciacca *et al.*, 2017). Results suggest that person-centred care needs to be improved to increase adult hearing rehabilitation uptake and use.

Researchers have explored how the person-centred care skills of audiologists can be improved (e.g., English & Archbold, 2014; Knudsen *et al.*, 2013; Laplante-Lévesque, Hickson & Worrall, 2010; Muñoz *et al.*, 2017; Scarinci *et al.*, 2013; Singh *et al.*, 2016; Tai, Barr & Woodward-Kron, 2017; Turnbull, 2016). For example, the counselling skills of twenty British audiologists improved following a six-week programme, whereby participating audiologists self-reported improvements with turn taking, involving patients in shared decision making and how they provided information to patients (English & Archbold, 2014). While the skills of clinicians can be improved, environmental factors that impact person-centred clinical practice have not been investigated. Senior managers have ultimate responsibility for determining the clinical practice of audiologists and audiometrists within each hearing rehabilitation organisation and for providing the conditions necessary for person-centred care. For example, enabling the active involvement of clients in pre-appointment (such as making the appointment), in-appointment (such as processes that support shared decision making or payment for rehabilitation services) and post-appointment behaviours (such as problem solving device issues) is only possible with the support of the hearing rehabilitation organisation (Knudsen *et al.*, 2013).

To-date, research has not focused on the criteria used by senior managers for implementing clinical practices within hearing rehabilitation organisations. Research in other healthcare fields have shown that senior managers are critical for the implementation of person-centred care in healthcare organisations (e.g., Ahn, Keyser & Hayward-Everson, 2016; Bokhour *et al.*, 2018; Carlström & Ekman, 2012; Gillespie, Florin & Gillam, 2004; Luxford, Safran & Delbanco, 2011; Rosengren, 2016). For example, interviews with forty individuals across eight American healthcare organisations renowned for successfully

promoting person-centred care found that senior managers who made a long-term commitment to person-centred care created a culture of person-centredness within the organisation that subsequently affected all organisational processes including the hire, training, incentives and accountability of staff, how patients and their family members were involved, how the quality of care was evaluated, and how patient feedback was implemented (Luxford, Safran & Delbanco, 2011).

Senior managers can improve the organisational-wide uptake of person-centred care by evaluating person-centred care (Charmel & Frampton, 2008; Helfrich *et al.*, 2016; Lee, Lee & Kang, 2012; Luxford, Safran & Delbanco, 2011). By evaluating person-centred care, healthcare organisations can elicit and respond to client feedback, understand the quality of provided care, and incentivise desired behaviours from their staff while holding undesired behaviours accountable (Bokhour *et al.*, 2018; Charmel & Frampton, 2008; Lee, Lee & Kang, 2012; Luxford, Safran & Delbanco, 2011). Furthermore, by evaluating person-centred care, the healthcare organisation has evidence of the outcomes for providing person-centred care. For example, in a review of twenty-eight systematic reviews, Park and colleagues (2018) found that person-centred interventions increased patient outcomes by improving patients' knowledge about their own health, their skills to self-manage their own care, their satisfaction and quality of life. These findings extended to family members who reported less stress, anxiety and depression, while also increasing their satisfaction and improving their relationship with the health-care providers (Park *et al.*, 2018). By evaluating person-centred care, the healthcare organisation can also quantify organisational-level benefits of providing person-centred care, such as improved staff and financial outcomes (Charmel & Frampton, 2008; Magill *et al.*, 2015; Olsson *et al.*, 2009; Rathert, Wyrwich & Boren, 2012; van der Laan *et al.*, 2014). For example, organisational-level outcomes identified in Park *et al.*'s (2018) systematic review included improved financial outcomes arising from reduced

hospital admissions, readmissions and length of stay, and from staff reports of improved job satisfaction and confidence alongside reduced stress and burnout (Park *et al.*, 2018).

Research investigating the role of senior managers for implementing person-centred care in other healthcare organisations collectively suggest that person-centred care must be a part of the criteria used by senior managers to determine organisational success. However, little is known about the extent to which person-centred care is valued in organisational success by senior managers within Australian hearing rehabilitation organisations, how person-centred care is evaluated within hearing rehabilitation organisations, and the impact of providing person-centred care on organisational-valued outcomes. This thesis aimed to address these gaps to provide an evidence base for a top-down approach to the implementation of person-centred care within the Australian adult hearing rehabilitation context. An evidence-based behavioral science approach is needed to ensure that findings can be used to improve the uptake of person-centred care in hearing rehabilitation organisations (Barker, Atkins & de Lusignan, 2016; Coulson *et al.*, 2016; Michie, Atkins & West, 2014; Wong & Hickson, 2012). Findings of this thesis will collectively contribute to understanding the environmental factors that affect the low uptake of person-centred care in clinical practice and identify how to improve it in a manner that is useful for senior managers of hearing rehabilitation organisations.

Finally, while it may be argued that the basic delivery of hearing healthcare to adults is not dissimilar to that required for services to children, paediatric hearing rehabilitation involves a family constellation in which the parent(s) are the critically important decision makers in how services are delivered and received, compared to the individual with hearing impairment themselves and their key communication partners or family members within adult hearing rehabilitation. Moreover, in Australia, almost all paediatric hearing rehabilitation for children with hearing loss is delivered through a single Government agency

– Hearing Australia. Given these factors, this thesis is focused solely on person-centred care within adult hearing rehabilitation.

1.1 Thesis Aims

The overall aim of this thesis was to provide an evidence base for a top-down approach to the implementation of person-centred care within the Australian adult hearing rehabilitation context. The specific aims of this thesis were addressed using an exploratory-sequential mixed-methods design (Fetters, Curry & Creswell, 2013). The exploratory first phase of this thesis aimed to:

i) Investigate how senior managers of hearing rehabilitation organisations in Australia define and evaluate success;

ii) Investigate how senior managers of hearing rehabilitation organisations define and evaluate person-centred care;

iii) Identify the perceived facilitators of and barriers to person-centred care evaluation according to senior managers of hearing rehabilitation organisations in Australia, in the context of behavior change theory;

The aim of the quantitative second phase of this thesis was:

iv) To evaluate the organisational-valued outcomes of a person-centred care intervention in a hearing rehabilitation organisation setting

1.2 Thesis outline

This thesis is organised as follows. Chapter two provides a review of the literature that explore the background that led to the identification of the overall and specific research aims. Chapter three describes the rationale behind the exploratory-sequential mixed methods design used to address the research aims and discusses the terminology used in this research. Chapter four addresses the first three research aims by investigating the criteria used by sixteen senior managers from twelve hearing rehabilitation organisations across Australia to

define and evaluate success and person-centred care in the exploratory first phase. Senior managers also describe their perceived facilitators and barriers to person-centred care evaluation within their organisations. The chapter describes the philosophical underpinnings for the qualitative research, its procedure, analysis, findings and implications.

Findings from the first phase influenced the study design and choice of outcomes in the second phase. Chapter five addresses the second phase aim by evaluating one aspect of person-centred care - psychosocial communication – using an intervention delivered to graduate intern audiologists in a non-randomised cohort comparison trial on person-centred care evaluation measures and organisational-valued client, clinician and financial outcomes. Chapter five describes the intervention, study design, materials, hypotheses, procedure, results and provides a discussion of key findings and study limitations for the quantitative second phase. Chapter six provides a concluding discussion of the key overall findings, the contribution of the research to the literature and its broader implications in relation to the overall thesis aim of providing an evidence base for a top-down approach to the implementation of person-centred care within the Australian hearing rehabilitation context.

2 Literature Review

This chapter provides a review of the literature that led to the overall and specific research aims described in the introductory chapter. The literature review begins by discussing the impacts of untreated hearing impairment for the individual and their key communication partners and provides the hearing rehabilitation context in Australia for treating hearing loss. The literature review then describes how person-centred care can improve hearing rehabilitation uptake and usage rates and provides evidence of its practice within the Australian hearing rehabilitation context. The critical role of senior managers for implementing person-centred care within healthcare organisations is then discussed. Finally, the literature review outlines the key research gaps that need to be addressed for a top-down approach to the implementation of person-centred care within Australian hearing rehabilitation organisations.

2.1 The deleterious impacts of hearing loss

This section describes the wide-ranging impacts of hearing loss on the individual and their communication partners to provide the broader context of why hearing rehabilitation is needed.

The deleterious effects of hearing impairment are wide-reaching. In a synthesis of research evidence, Vas, Akeroyd and Hall (2017) broadly classified the impacts of hearing loss on the individual and their communication partners across three domains: “Auditory” related to perception of sound and speech; “Social” represented the impact of hearing loss on activities with friends and family, as well as attitudes towards hearing loss; while, “Self” related to self-perception and personality (Vas, Akeroyd & Hall, p.7). From an auditory standpoint, age-related hearing loss typically presents as a bilateral sensorineural hearing loss in the higher frequencies which can impair one’s ability to understand speech (Cunningham

& Tucci, 2017). However, the self and social domains represent the psychosocial aspects of hearing loss which can greatly worsen the lived experience of hearing loss (Gopinath *et al.*, 2012; Vas, Akeroyd & Hall, 2017), particularly if left untreated (Loughrey *et al.,* 2018; Palmer *et al.*, 2019; Punch, Hitt & Smith, 2019; Simning *et al.*, 2018).

Psychosocial experiences of hearing loss may include frustration, stress, withdrawal, loneliness, anxiety and depression arising from communication difficulties (Barker, Leighton & Ferguson, 2017). Those who experience the effects of hearing loss may be more likely to experience the effects of emotional and social loneliness (Pronk *et al.*, 2011), a loss of autonomy (Hearing Health Sector Committee, 2019), or an increase in anxiety and depression (Hearing Health Sector Committee, 2019) beyond what is expected from their audiometric hearing thresholds (Golub, Brewster & Brickman, 2019; Sung *et al.*, 2014). The psychosocial impacts of hearing loss for the individual are expected to be worse in older adults. In two large sample studies from Canada, older adults with greater self-reported hearing difficulty perceived their participation in group activities as more restricted and were more likely to infrequently participate in group activities compared to older adults who did not report hearing difficulties (Mikkola *et al.*, 2015), while another study found that hearing impairment can impair the linguistic communication of older adults which was in turn associated with poorer mood and social engagement (Brinks & Stones, 2007).

Quality of life may deteriorate among those who experience a hearing handicap (Punch, Hitt & Smith, 2019; Gopinath *et al.*, 2012) as they also experience more fatigue in their communication with others (Hornsby & Kipp, 2016). The individual with hearing impairment might also experience negative social stigmas, such as of being older or perhaps having low intelligence, leading many to try to hide their hearing loss from others (Barker, Leighton & Ferguson, 2017; Wilson *et al.*, 2017). Although some people with hearing impairment may identify strategies to cope with their psychosocial concerns successfully in

an engaged manner (by taking action using hearing aids or communication tactics), many others attempt coping unsuccessfully in an disengaged manner (by denying or ignoring their hearing loss or withdrawing from social situations) (Heffernan *et al.*, 2016). The ability to self-manage one's hearing loss can vary widely across individuals (Convery *et al.*, 2019).

Hearing loss can negatively affect communication and relationships with key communication partners (Barker, Leighton & Ferguson, 2017; Cunningham & Tucci, 2017; Vas, Akeroyd & Hall, 2017). The psychosocial impacts of hearing loss extend beyond the individual, affecting both the person with hearing impairment and their key communication partners. Communication partners refer to spouses, partners, close family members, or caregivers that the person with hearing impairment interacts with on a regular basis (Kamil & Lin, 2015). A systematic review including observational clinical studies, randomized clinical trials and epidemiologic studies has also identified that the communication partner of someone with hearing loss experiences a more restricted social life, faces an increased burden of communication, report a poorer quality of life and are less satisfied with their relationship with the person with hearing loss (Kamil & Lin, 2015). Barker, Leighton and Ferguson (2017) identified in a qualitative meta-synthesis of the psychosocial experiences of people with hearing loss and their communication partners that there tends to be a joint experience of the effects of hearing loss, hearing aids, coping strategies, stigma and identity. The prevalence of a "third-party disability" experienced by communication partners of individuals with hearing loss may be higher than realised: in one study, 98% of spouses of an individual with hearing loss reported experiencing a third-party disability from hearing loss (Scarinci, Worrall & Hickson, 2012). Several of the negative effects on the communication partner can be resolved when the person with hearing impairment seeks treatment for their hearing loss (Kami & Lin, 2015); provided the communication partner is supportive throughout the process, since the journeys of the hearing impaired person and the communication partner

towards hearing rehabilitation success are inextricably linked (Barker, Leighton & Ferguson, 2017).

The lived experience of hearing loss may vary across individuals irrespective of degree of hearing impairment (Gopinath *et al.*, 2012). Factors that compound the experience of hearing loss may be biological, (e.g., degree of hearing loss), environmental (e.g., the presence and type of background noise), social (e.g., communication partners) and individual (e.g., personality) (Manchaiah & Danermark, 2017; Manchaiah & Stephens, 2013; Pronk, Deeg & Kramer, 2018). For example, research has shown that biological factors such as cognitive decline has been more closely linked with hearing loss and may be either a contributor or symptom of age-related hearing loss (e.g., Loughrey *et al.*, 2018; Pichora-Fuller, 2015). Older people with hearing impairment have been reported to have higher rates of hospitalization, death, falls, frailty, depression and dementia even when known risks are accounted for (Cunningham and Tucci, 2017). The major comorbidities reported by a Canadian geriatric audiology clinic among 135 older adults were visual (68%), cognitive (50%) and manual dexterity (42%), closely followed by hypertension (43%), falls (33%), depression (16%) and diabetes (13%); suggesting that the comorbidities associated with age-related hearing loss are diverse and are not limited to the effects of ageing (Dupuis *et al.*, 2019).

These findings suggest that there are wide-ranging deleterious impacts of hearing loss and the lived experience of hearing loss can vary widely across individuals and their communication partners. The hearing rehabilitation context for treating hearing loss in Australia is described in the next section.

2.2 The hearing rehabilitation context in Australia for treating hearing loss

This section will explore how hearing rehabilitation is provided in Australia for treating hearing loss. It describes the people involved, the setting for hearing rehabilitation and some

of the costs associated with providing hearing devices and services. This section is necessary to understand the broader context pertaining to the aims of this thesis.

In Australia, hearing loss that can be treated using medical or surgical means are treated by a General Practitioner (GP) (i.e., Primary Care Physician) or an Ear, Nose and Throat specialist (ENT) (i.e., Otorhinolaryngologist). Non-medical hearing rehabilitation is typically provided by audiologists and audiometrists who work for hearing rehabilitation organisations (HROs). Audiologists and audiometrists are health care professionals who work in prevention, assessment and non-medical treatment and rehabilitation of hearing disorders (Hearing Health Sector Committee, 2019). Audiologists complete a Masters degree in audiology at one of six Australian universities[3], while audiometrists undertake either a Bachelor's degree in audiology or Certificate IV qualifications.

Age-related hearing loss typically presents as a bilateral hearing loss in the higher frequencies which can impair one's ability to understand speech and may be subjectively perceived by the individual as other people "mumbling" (Contrera *et al.*, 2016; Cunningham & Tucci, 2017). Age-related and other hearing losses that cannot be treated using medical or surgical means is typically rehabilitated using hearing aids sometimes in conjunction with broader hearing rehabilitation options including individual or group counselling, auditory training and/or communication programmes (Laplante-Lévesque, Hickson & Worrall, 2010; McCarthy & Schau, 2008). Besides hearing aids, other hearing devices may include middle ear implants, cochlear implants and assistive listening devices (ALDs) (Schilder *et al.*, 2017), although new solutions are continually being developed. Hearing aids (for mild to moderate hearing losses) and cochlear implants (for more severe to profound hearing losses) have been shown to effectively manage the effects of hearing loss. For example, a Cochrane review of

[3] At the time of writing, the six universities in alphabetical order were: Flinders University, LaTrobe University, Macquarie University, The University of Melbourne, The University of Queensland, and the University of Western Australia

five randomized control trials involving 825 predominantly older adults (average ages across studies were between 69 and 83) concluded that hearing aid use was effective at improving the listening ability of adults with mild to moderate hearing loss and health-related quality of life across general health and hearing measures (Ferguson *et al.*, 2017). A large (n = 829) longitudinal study in Australia has also found that hearing aid use could improve the self-reported well-being of adults with hearing impairment compared to non-users (Gopinath *et al.*, 2012). A large longitudinal British study has also found that hearing aids can reduce hearing handicap and promote better physical health in older adults compared to non-users (Dawes *et al.*, 2015). Hearing aid use has been associated with improved cognitive and neural function for older adults (Karawani, Jenkins & Anderson, 2018), but findings can vary: Dawes and colleagues (2015) did not find evidence that hearing aids promoted cognitive function, mental health or social engagement over the long-term.

Research has shown limited success for broader hearing rehabilitation tools such as individual or group counselling. However, counselling can either augment the use of hearing aid(s) or serve as successful alternative options particularly when there is a significant hearing disability (Abrams, Hnath Chisolm & McArdle, 2002; Cienkowski & Saunders, 2013; Hickson *et al.*, 2006; Laplante-Lévesque, Hickson & Worrall, 2010; McCarthy & Schau, 2008; Vuorialho, Karinen & Sorri, 2006). For example, the use of follow-up counselling six months after the initial fitting of ninety-eight new hearing aids users (average age = 76.7 years, range 47 to 87 years) was found to increase regular hearing aid use, reduce the number of non-users and reduce self-reported hearing handicap (Vuorialho, Karinen & Sorri, 2006). The authors also considered the provision of counselling alongside hearing aids to be more cost-effective for improving hearing aid use (Vuorialho, Karinen & Sorri, 2006).

An individual seeking help for hearing loss (i.e., the “client”) may consult an audiologist or audiometrist (i.e., the “clinician”) to identify and rehabilitate their hearing

disorder at one of several hearing rehabilitation organisations across Australia, ranging from large multinational hearing providers to small independently-owned clinics. The typical clinical process involves identification and diagnosis of hearing impairment using a battery of clinical tests (which may include, but is not limited to, obtaining a client report of their health and hearing difficulties, a visual inspection of the ear, pure-tone audiometry to measure the severity of hearing impairment and speech discrimination testing). If a hearing loss has been found and no medico-surgical referrals are required, the clinician would lead the client into a discussion about the rehabilitation options available at the hearing rehabilitation organisation. The clinician may provide information about selection, device fitting/rehabilitation sessions and ongoing support pertaining to the chosen rehabilitation option.

Clients ineligible for funded hearing services are expected to pay the total costs for diagnostic and rehabilitation services, which may be bundled into a single package or itemised separately (i.e., unbundled) (Department of Health, 2017; Sjobald & Warren, 2011). For clients who are ineligible to receive funded hearing services, the cost of rehabilitation with a pair of hearing aids may range from A$2000 to A$12000. Funding for hearing devices and services are provided through different programmes in Australia including: the Hearing Services Program (HSP)[4]; the National Disability Insurance Scheme (NDIS); private health insurance; and accident and workplace injury insurances services (Hearing Health Sector Committee, 2019). Medicare provides rebates for hearing diagnostic services only (Hearing Health Sector Committee, 2019). To access funded services for their clients, clinicians have to be members with one of three professional practice bodies (PPBs)[5] and adhere to the jointly promulgated scope of practice.

[4] Previously known as the Office of Hearing Services (OHS) program

[5] At the time of writing, the three Australian professional practice bodies (PPBs) were Audiology Australia (AudA – for audiologists only), the Australian College of Audiology (ACAud – for audiologists and audiometritsts), and the Hearing Aid Audiometrists Society of Australia (HAASA – for audiometrists only).

According to a report commissioned by the Australian Government's Department of Health, HSP represents approximately 70% of the whole hearing devices market, with the private market estimated to constitute the remaining 30% (Department of Health, 2017). However, accurate private market statistics are difficult to obtain in Australia and reimbursement under insurance schemes were excluded from their estimate. An estimated 85% of HSP services are provided by seven large organisations – comprising of the Australian Government provider Hearing Australia[6] and vertically-integrated companies, owned by hearing aid manufacturers, hearing rehabilitation conglomerates or ENT specialists (Department of Health, 2017). The remaining 300+ hearing rehabilitation providers consist of small and medium-sized hearing rehabilitation providers based mainly in densely populated urban areas of Victoria, New South Wales and Queensland. For the 2017-18 financial year, the Department of Health and Ageing spent A$514 million on hearing services to support 972,000 clients through their HSP, constituting less than 1% of the annual expenditure of the Department of Health and Ageing (Department of Health, 2018; Office of Hearing Services, 2018). HSP spending has continued to rise, increasing from A$372 million in 2012-13 and A$475 million in 2015-16 (Department of Health, 2013, 2016). Spending on hearing services is likely to rise further as Australia's population ages.

This section described the hearing rehabilitation context in Australia. Hearing aids are considered effective for treating hearing loss for individuals with mild to severe hearing loss and are widely available throughout Australia under various funding models for individuals with mild to severe hearing loss (Hearing Health Sector Committee, 2019).

[6] Previously known as Australian Hearing

2.3 Improving low hearing rehabilitation uptake and use through the use of person-centred care

Despite the widespread availability of hearing rehabilitation in Australia (Hearing Health Sector Committee, 2019) and the effectiveness of using hearing aids for reducing the impact of hearing loss (e.g., Dawes *et al.*, 2015; Ferguson *et al.*, 2017; Gopinath *et al.*, 2012), only an estimated 39% of older adults seek help for their hearing loss (Hartley, 2005; Schneider *et al.*, 2010). Hearing aid adoption and usage rates are also low. The Australian Blue Mountains Study found that only 31% of adults over 60 years old with bilateral hearing impairment reported having a hearing aid (Chia *et al.*, 2007), consistent with reported uptake statistics from other Western countries such as the UK (20-25%), USA (30.2%) and Sweden (20-25%) (Abrams & Kihn, 2015; Zhao *et al.*, 2015). Furthermore, only 77% of adults who have a hearing aid usually use their hearing aid (Chia *et al.*, 2007), implying that only 24% of adults with bilateral hearing impairment use their hearing aids. More recent statistics were unavailable at the time of writing. This section will provide a rationale on how a person-centred approach can improve hearing rehabilitation uptake and use.

Given the wide-ranging benefits for successfully rehabilitating hearing loss, there has been extensive research into the factors affecting hearing rehabilitation uptake and use (e.g., Barker *et al.*, 2016; Hickson *et al.*, 2014; Hornsby & Kipp, 2016; Ismail *et al.*, 2019; Laplante-Lévesque, Hickson & Worrall, 2010; Knudsen *et al.*, 2010; McCormak & Fortnum; 2013; Ng & Loke, 2015; Pronk *et al.*, 2017; Saunders *et al.*, 2016; Tahden *et al.*, 2018). Most factors that affect hearing rehabilitation uptake and use are non-audiological and can be classified as either personal or environmental factors. For personal factors, self-perceived hearing disability was found to be the most common predictor of hearing rehabilitation uptake and use in older adults across numerous studies (McCormack & Fortnum, 2013; Hickson *et al.*, 2014; Hornsby & Kipp, 2016; Knudsen *et al.*, 2010; Laplante-Lévesque,

Hickson & Worrall, 2010; Meyer & Hickson, 2012; Ng & Loke, 2015; Pronk *et al.*, 2017; Tahden *et al.*, 2018). A study involving 377 older adults identified self-reported hearing disability as a major factor that predicted if clients decided to trial a hearing aid four months after their initial appointment (Pronk *et al.*, 2017). In another study, older adults with mild-to-moderate hearing loss that perceived their hearing problem to be more severe were more likely to be hearing aid users, after hearing impairment, age and sex were accounted for (Tahden *et al.*, 2018).

Personal factors that affect hearing rehabilitation uptake and use can also include: the attitude, beliefs and expectations of the individual towards undertaking hearing rehabilitation; their experience of stigma regarding hearing loss or hearing aids use; their perceived self-efficacy for managing hearing rehabilitation; demographic; and financial factors. A systematic review of hearing aid adoption and use among elderly adults identified that expectations around hearing aid use and self-perceived benefit and satisfaction affected the adoption and use of hearing aids among elderly adults (Ng & Loke, 2015). Older adults who expect greater benefits from hearing aids and are ready to proceed with hearing rehabilitation were more likely to trial hearing aids than others who had lower expectations (Pronk *et al.*, 2017). Hearing aid users also needed to experience benefit from their hearing aids to persist with hearing device use (Ng & Loke, 2015; Pronk *et al.*, 2017). A retrospective study of 160 older adults fitted with their first hearing aid(s) in the previous two years found that successful hearing aid users (i.e., those who self-reported hearing aid use and benefit) did not only have greater self-reported hearing disability and more positive attitudes to hearing aids, but perceived greater self-efficacy for advancing handling of their hearing aids compared to unsuccessful hearing aid users (Hickson *et al.*, 2014). Financial constraints arising from lower socioeconomic status were also identified as a barrier to hearing aid uptake in Germany

(Tahden *et al.*, 2018) and the USA (Contrera *et al.*, 2016), but the hearing rehabilitation system in Australia may mitigate financial constraints to hearing aid uptake.

Environmental factors that facilitate hearing rehabilitation uptake and use include involvement of key communication partners, the clinician and the broader hearing rehabilitation context. Given the broader psychosocial impact of hearing loss, communication partners have been found to be important for hearing rehabilitation uptake and use in several studies, (Heacock, Montano & Preminger, 2019; Meyer and Hickson, 2012; Ng & Loke, 2015; McCormack & Fortnum, 2013; Pronk *et al.*, 2017). However, communication partners can impact uptake and use positively or negatively. For example, Barker, Leighton and Ferguson (2017) argue that the key communication partner (typically a spouse or family member) may first notice and actively encourage the individual with hearing impairment to seek help. As both the hearing impaired individual and their communication partner accept the effects of hearing loss and recognise the need for hearing aids, they encounter a redefinition of roles and capabilities. If stigma is found to be reduced, then hearing aids can become a part of the identity of both the hearing impaired individual and their communication partners, and hearing aid use is likely to be sustained (Barker, Leighton & Ferguson, 2017). However, if the key communication partner faces barriers throughout this process, then hearing device uptake and use by the individual with hearing impairment is likely to be negative affected (Barker, Leighton & Ferguson, 2017). There is evidence that family member attendance at hearing consultation appointments alone has also been shown to increase hearing aid uptake. A large-scale retrospective study of 63,105 patients found a significant increase in hearing aid adoption rates when a family member attended the hearing rehabilitation appointment with the patient (64% compared to 50% of patients who attended alone) (Singh and Launer, 2016).

The clinician has perhaps a key role in improving hearing rehabilitation uptake and use due to their ability to address several personal and environmental barriers raised by clients or their communication partners (Aahz, 2016; Aazh & Moore, 2017; Dawes, Maslin & Munro, 2014; Kundsen *et al.*, 2013; Grenness *et al.*, 2014a, 2014b; Ismail *et al.*, 2019; Solheim *et al.*, 2018; Poost-Foroosh *et al.*, 2011, 2015). For example, audiologists who use motivational interviewing (Aazh, 2016; Solheim *et al.*, 2018) and counseling (Vuorialho, Karinen & Sorri, 2006) have been found to increase hearing aid use. A pilot randomized-control trial of thirty-seven adult clients seen by one audiologist found that the use of motivational interviewing during hearing rehabilitation appointments was able to increase low hearing aid use compared to adults who only received standard care (Aahz, 2016). Another study found that among thirty-seven older adults who received motivational interviewing six-months after their initial hearing aid fitting, more than half increased their hearing aid use a further three months following the intervention (Solheim *et al.*, 2018). While both of these studies are small, they highlight the importance of the clinician for hearing aid use and uptake.

In particular, hearing rehabilitation research suggests that clinician behaviours that are considered to be person-centred can improve hearing rehabilitation uptake and use (Aazh & Moore, 2017; Dawes, Maslin & Munro, 2014; Kundsen *et al.*, 2013; Grenness *et al.*, 2014a, 2014b; Poost-Foroosh *et al.*, 2011; Poost-Foroosh, Jennings & Cheesman, 2015). Clients and clinicians must collaborate in hearing rehabilitation to identify the needs, desires, values, preferences and readiness of clients while also considering the clinician's expertise (Poost-Foroosh *et al.*, 2011; Poost-Foroosh, Jennings & Cheesman, 2015). As a chronic illness, client involvement is required to manage the challenges of hearing loss over time (Knudsen *et al.*, 2013). In an attempt to provide a better understanding of person-centred care for rehabilitative audiologists, Grenness and colleagues (2014a) concluded from their review that

person-centred care in hearing rehabilitation can be defined as "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" (p.S65).

Research exploring the views of clients confirm the need for a person-centred approach to hearing rehabilitation (Knudsen *et al.*, 2013; Grenness *et al.*, 2014a, 2014b; Poost-Foroosh *et al.*, 2011; Poost-Foroosh, Jennings & Cheesman, 2015). In subsequent interviews with ten older hearing rehabilitation clients in Australia, Grenness and colleagues found clients valued the interpersonal communication skills of the clinician to foster a therapeutic client-clinician relationship built on trust during the clinical encounter to support the needs of client of being informed, involved and to receive individualised care (Grenness *et al.*, 2014b). A study exploring the views of thirteen adults who were recently recommended hearing aids and ten audiologists found that the three most important client-clinician interaction factors expected to improve hearing aid uptake that the clinician ensures the comfort of the client, that clinicians understand and meet client needs, and the person-centred traits and action of the clinician (Poost-Foroosh *et al.*, 2011). The study also concluded that two overarching themes, positive client-clinician interaction and client empowerment, were key to increasing hearing aid uptake (Poost-Foroosh *et al.*, 2011). In another study, qualitative interviews with thirty-four adults with hearing impairment identified that the active participation of clients in their hearing rehabilitation journey can improve hearing device uptake, use, benefit and satisfaction (Knudsen *et al.*, 2013). Although these results suggest that person-centred client-clinician interactions have a critical function in improving hearing device uptake and use, the outcomes of providing person-centred care are still to be empirically investigated.

Through a person-centred approach, clinicians can better address the personal factors that affect hearing rehabilitation uptake and use for the individual with hearing loss and their

communication partners. Communication partners can reduce the perceived effects of living with hearing impairment and play a vital role in supporting hearing device uptake and use (Barker, Leighton & Ferguson, 2017; Heacock, Montano & Preminger, 2019) and help achieve good hearing rehabilitation outcomes (Scarinci *et al.*, 2013; Scarinci, Worrall & Hickson, 2012). Understanding the perspectives of clients and their key communication partners are essential to achieving hearing rehabilitation outcomes (Barker, Leighton & Ferguson, 2017; Vas, Akeroyd & Hall, 2017) and thus a necessary part of person-centred care. Clinicians should not only address the technical concerns of clients that prevent hearing aid use but ensure that they listen empathetically and use psychosocial communication with clients and their family members to manage the impacts of hearing loss and hearing aid use (Aazh & Moore, 2017; Dawes, Maslin & Munro, 2014; Ekberg, Grenness & Hickson, 2016). Listening effectively to clients and their family members during the history taking phase of clinical appointments may be an efficient way to predict individuals who are ready to adopt hearing aids and allow clinicians to provide individualised rehabilitation recommendations under a shared decision-making framework (Ekberg, Grenness & Hickson, 2016).

This section has demonstrated how a person-centred approach to hearing rehabilitation is critical for increasing hearing aid uptake and use. Clinicians can provide clients with high quality individualised care to improve hearing rehabilitation uptake and use by listening to the client, focusing on their needs, preferences and goals, keeping them informed, and involving clients and their communication partners. The next section will examine research that has investigated person-centred care within the Australian hearing rehabilitation context.

2.4 The practice of person-centred care in Australian hearing rehabilitation

Given the importance of person-centred care for improving hearing rehabilitation uptake and use, this section discusses the research exploring the preferences of clinicians for providing

person-centred care and the practice of person-centred care by audiologists in Australia. This section will provide evidence that person-centred care is not widely practiced within hearing rehabilitation in Australia and needs to be improved to increase hearing rehabilitation uptake and use.

Audiologists have generally expressed a preference for person-centred care across several studies (Laplante-Lévesque, Hickson & Grenness, 2014; Manchaiah *et al.*, 2014; Poost-Foroosh *et al.*, 2011, Poost-Foroosh, Jennings & Cheesman 2015). For example, Laplante-Lévesque, Hickson and Grenness (2014) found in a nationwide survey of 663 audiologists in Australia that patient-centred behaviours were preferred more by older and more experienced audiologists working for not-for-profit organisations. Participants completed a patient-practitioner orientation scale (PPOS) modified for audiology where they ranked their preference across two domains: "caring" indicated the extent to which the respondent values warmth and support in their interactions with clients; and "sharing" indicated the respondent's belief that power and control should be shared between the client and the clinician (Laplante-Lévesque, Hickson & Grenness, 2014, p.S77). The PPOS has also elicited high clinician preferences for person-centredness from audiologists in Portugal, India, Iran, and among audiology students in Portugal (Manchaiah *et al.*, 2014, 2016). Assuming the validity of the PPOS as a measure of person-centredness, results suggests that audiologists in Australia have reported preferences for person-centred behaviours that correspond to those reported by clinicians from overseas, and that audiologists in Australia should be expected to effectively provide person-centred care to clients.

On the contrary, clinician-preferences for person-centred care have not been reflected in clinical practice. A corpus of qualitative research that analysed video-observations of audiology consultations involving sixty-three older adults and seventeen of their companions has provided evidence that person-centred care is not comprehensively practiced within the

Australian hearing rehabilitation context (Ekberg, Grenness & Hickson, 2014, 2017; Ekberg *et al.*, 2014, 2015; Grenness *et al.*, 2015a, 2015b; Sciacca *et al.*, 2017). The twenty-six participating audiologists had difficulties implementing person-centred behaviours such as shared decision making, using psychosocial communication with clients, involving clients and their family members, building rapport and providing comprehensive information to clients during the history-taking, diagnosis and management planning phases of audiology consultations (Ekberg, Grenness & Hickson, 2014, 2017; Ekberg *et al.*, 2014, 2015; Grenness *et al.*, 2015a, 2015b; Sciacca *et al.*, 2017). These studies are discussed further below.

For example, Grenness *et al.* (2015a) used the Roter Interaction Analysis System (RIAS) to assess verbal dominance patterns, frequency of turn-taking, content balance, question types and responses from video recordings of the history-taking phase of initial audiology consultations. Clinicians were found to competently capture medical and lifestyle content but were less effective with using psychosocial communication to address clients' concerns (Grenness *et al.*, 2015a). The diagnosis and management planning phases of the same interactions were analysed for communication profiles, dynamics and the influence of each speaker (clinician, client and attending family members) and revealed further opportunities missed by clinicians for implementing person-centred care: clients had unaddressed psychosocial concerns; clinicians missed relationship building opportunities; and family members had limited involvement during consultations (Ekberg, Grenness & Hickson, 2014; Grenness *et al.*, 2015b). Although hearing aid and biomedical information were presented to clients, emotional issues were inadequately addressed, which may have impaired relationship building and clinician-patient rapport (Ekberg, Grenness & Hickson, 2014; Grenness *et al.*, 2015a, 2015b).

Family members were attendees in seventeen hearing rehabilitation appointments, but interactions between clinicians, patients and the patient's family members were rarely

collaborative (Ekberg *et al.*, 2014, 2015). Ekberg *et al.* (2014) combined the use of RIAS and qualitative conversational analysis to assess clinician and patient-family interactions in hearing rehabilitation appointments and found that attending family supported the patient by providing information not offered by the clinician and by being able to disagree with the clinician about rehabilitation plans. Although not typically invited to participate, family members may still attempt to be involved in the client's care by responding on the behalf of the clients or by asking the clinician questions (Ekberg *et al.*, 2015).

Decision making about hearing rehabilitation options was also observed to be clinician-directed as opposed to following a shared-decision making framework (Ekberg, Barr & Hickson, 2017; Grenness *et al.*, 2015a, 2015b). Clinicians sometimes recommended hearing aids without input from the patient or their family members or provided limited information about alternative hearing rehabilitation options (Ekberg *et al.*, 2015; Grenness *et al.*, 2015b), choosing to do so only if initial recommendations were rejected (Ekberg, Barr & Hickson, 2017). Furthermore, clinicians used complex language during appointments which impaired sharing decision making and hearing aid uptake (Sciacca *et al.*, 2017).

These findings demonstrate the significant gap between clinician preferences for person-centred behaviours and their practice of person-centred care. One potential explanation for the evidence-practice gap is that client and clinician views of person-centred care do not always correspond (Manchaiah *et al.*, 2017; Poost-Foroosh, Jennings & Cheesman, 2015). For example, one study explored the preferences of sixty-four clinicians and forty-three adults with hearing loss for various client-clinician interactions expected to improve hearing aid uptake (Poost-Foroosh, Jennings & Cheesman, 2015). While clinicians prioritised factors in client readiness to ensure hearing device uptake, clients provided higher rankings for three different factors: that the clinicians understood and met their needs; that the clinician conveyed device information to them; and that the clinician supported their choices

and shared decision making with them (Poost-Foroosh, Jennings & Cheesman, 2015). The findings of Poost-Foroosh, Jennings & Cheesman (2015) suggest that person-centred is a broader concept than the views of either the client or the clinician but needs to encompass the views of both. This indicates how crucial it is that clinician-completed surveys (such as the PPOS) need to be validated against clinical practice (Ali, Meyer & Hickson, 2018) and client outcomes (Manchaiah *et al.*, 2014; Laplante-Lévesque, Hickson & Grenness, 2014).

There were a few limitations with this corpus of research: evaluation of person-centred practice was through video observation and did not take into account client perceptions of the quality of care received or client outcomes such as hearing rehabilitation use and benefit. Nevertheless, the corpus of qualitative research also suggests that person-centred care is not widely practiced within Australian hearing rehabilitation, and that person-centred care practice needs to be improved to increase hearing rehabilitation uptake and use. In particular, clinicians who missed opportunities to address the psychosocial communication needs of clients is a key area of person-centred care that requires urgent attention, especially given the many psychosocial impacts of hearing loss for the individual and their communication partners (Barker, Leighton & Ferguson, 2017; Cunningham & Tucci, 2017; Vas, Akeroyd & Hall, 2017). Effective interventions are necessary to improve the quality of clinical practice being provided to hearing impaired clients and their family members.

This section provided evidence that person-centred care is not widely practiced despite clinician-reported preferences for person-centred care. The next section of the literature review will discuss the key role of senior managers for implementing person-centred care in healthcare organisations and identify research gaps for improving the uptake of person-centred care in Australian hearing rehabilitation organisations.

2.5 The role of senior managers for advancing person-centred care within hearing rehabilitation

The previous section provided evidence of the clinical practice of person-centred care in the Australian hearing rehabilitation context. This section begins by outlining interventions that have been used to improve the person-centred care skills of clinicians and highlights the importance of considering environmental factors that can affect person-centred care. In particular, the critical role of senior managers for implementing person-centred in healthcare organisations and the importance of evaluating person-centred care to the healthcare organisations are discussed.

Given the importance of person-centred care for hearing rehabilitation uptake and use, there has been growing research exploring how to improve client involvement in their care (e.g., Knudsen *et al.*, 2013), family involvement in care (Scarinci *et al.*, 2013; Singh *et al.*, 2016; Turnbull, 2016), psychosocial communication (English & Archbold, 2014; Johnson, Jilla & Danhauer, 2018; Muñoz *et al.*, 2017; Tai, Barr & Woodward-Kron, 2017) and shared decision making in clinical appointments (e.g., Laplante-Lévesque, Hickson & Worrall, 2010). For example, the counselling skills of twenty British audiologists improved following a six-week programme, whereby participating audiologists self-reported improvements with turn taking, involving patients in shared decision making and how they provided information to patients (English & Archbold, 2014). While the skills of clinicians can be improved, the clinical context can impact the delivery of person-centred care (Fixsen *et al.*, 2005). For example, enabling the active involvement of clients in pre-appointment (such as making the appointment), in-appointment (such as processes that support shared decision making or payment for rehabilitation services) and post-appointment behaviours (such as problem solving device issues) is only possible with the support of the hearing rehabilitation organisation (Knudsen *et al.*, 2013).

Senior managers have ultimate responsibility for determining the clinical practice of audiologists and audiometrists within each hearing rehabilitation organisation and for providing the conditions necessary for person-centred care. Clinical encounters do not occur in isolation, and consideration must be given to organisational dimensions that impact person-centred care (Grenness *et al.*, 2014b). Clinical processes determined by the hearing rehabilitation organisation and practiced by its clinicians contribute to individualised care by facilitating information exchange, shared decision making and problem solving (Grenness *et al.*, 2014b). Outside of the clinical encounter, the hearing rehabilitation organisation also has a vital role in providing access to care which includes having available appointments and by providing affordable options. Family members need to be invited to attend appointments with the client's consent. Ongoing support is also provided to the client through interactions from administrative support personnel. Despite the importance of the environmental context for providing person-centred hearing rehabilitation, there is little research to-date that has focused on the criteria used by senior managers for implementing clinical practices such as person-centred care within hearing rehabilitation organisations.

Research in other healthcare fields have shown that senior managers are critical for the implementation of person-centred care in healthcare organisations (e.g., Ahn, Keyser & Hayward-Everson, 2016; Bokhour *et al.*, 2018; Carlström & Ekman, 2012; Gillespie, Florin & Gillam, 2004; Luxford, Safran & Delbanco, 2011; Rosengren, 2016). For example, interviews with forty individuals across eight American healthcare organisations renowned for successfully promoting person-centred care found that senior managers who made a long-term commitment to person-centred care created a culture of person-centredness within the organisation that subsequently affected all organisational processes including the hire, training, incentives and accountability of staff, how patients and their family members were

involved, how the quality of care was evaluated, and how patient feedback was implemented (Luxford, Safran & Delbanco, 2011).

Senior managers have a key role in the uptake of person-centred care within the organisation using clinical processes. Senior managers are responsible for providing oversight for services and must organise care in a way that makes sense for the patient and their families (Rosengren, 2016). This means that appointment structures, communication methods and care experiences must be carefully planned from the perspectives of the end users (Rosengren, 2016). Senior managers are responsible for aligning staff roles and priorities and for providing organisational structures and processes for staff to provide high quality, person-centred care (Bokhour *et al.*, 2018; Helfrich *et al.*, 2016), and means finding the balance between clinician autonomy and highly organised but less flexible care (Helfrich *et al.*, 2016).

Changing a workplace culture to one that is more person-centred requires persistent leadership and the involvement of staff (Ahn, Keyser & Hayward-Everson, 2016; Bokhour *et al.*, 2018 Luxford, Safran & Delbanco, 2011; Rosengren, 2016). Managers need to continually convey their vision of person-centred care to staff members clearly and consistently, to foster a culture which values excellence in care, encourage continual learning and openness to change (Luxford, Safran & Delbanco, 2011). Rosengren (2016) found in a qualitative study of eight front-line medical managers of a Swedish hospital that managers needed to show leadership and commitment to person-centred care to change organisational culture, while Ahn, Keyser & Hayward-Everson (2016) showed that agencies that were innovative, flexible and outward focus were more likely to use family-centred practices in child welfare. Staff who are more receptive to change facilitate quicker changes in organisational culture towards a more patient-centred approach. However, clinicians may be resistant to changing previously learnt attitudes towards new behaviours (Gillespie, Florin &

Gillam, 2004; Luxford, Safran & Delbanco, 2011). In some cases, effective training and development of staff members can overcome resistance to change and facilitate person-centred care (Luxford, Safran & Delbanco, 2011). However, staff who provided continued resistance to a person-centred approach may need to be replaced (Luxford, Safran & Delbanco, 2011).

Therefore, senior managers have to carefully consider how they hire and retaining staff that facilitate a culture of person-centredness (Ahn, Keyser & Hayward-Everson, 2016; Helfrich *et al.*, 2016; Lee, Lee & Kang, 2012; Luxford, Safran & Delbanco, 2011). Helfrich and colleagues (2016) conducted a large-scale survey exploring the facilitators and barriers associated with successful uptake of person-centred care amongst 5069 primary care employees from 643 clinics in America. While facilitators that predicted successful organisational-wide uptake of person-centred care included a strong team culture, the use of measurement tools and availability of resources to provide better patient care; the recruiting and retaining of staff was a barrier that predicted poor organisational-wide uptake of person-centred (Helfrich *et al.*, 2016).

Person-centred care evaluation is a key instrument for senior managers of healthcare organisations to assess the quality of care being provided for the benefit of clients and the organisation (e.g. ACSQHC, 2011; Bokhour *et al.*, 2018; Charmel & Frampton, 2008; Grol, 2001; Heidenreich, 2013; Helfrich *et al.*, 2016; Luxford, Safran & Delbanco, 2011; Park *et al.*, 2018). By evaluating person-centred care, healthcare organisations can elicit and respond to client feedback, understand the quality of provided care, understand the outcomes of providing person-centred care, and incentivise desired behaviours from their staff while holding undesired behaviours accountable (Luxford, Safran & Delbanco, 2011). Eliciting feedback from patients and their family members is an inherently person-centred action (ACSQHC, 2011): patient empowerment can occur when patients are involved to provide

practical methods to address their concerns (Gillespie, Florin & Gillam, 2004; Grol, 2001). Even more important than obtaining client feedback is to implement the feedback provided, which can be a relatively inexpensive and simple way to improve previously undetected and deficient areas of care (Luxford, Safran & Delbanco, 2011; van der Laan *et al.*, 2014). By first identifying patients' needs and desires for person-centred care, individual goals can be better met using person-centred approaches: for example, psychosocial care can be targeted to those who need it most (van der Laan *et al.*, 2014).

Person-centred care evaluation can also help the organisation better understand the quality of their service provision and understand the outcomes of providing person-centred care (Charmel & Frampton, 2008; Helfrich *et al.*, 2016; Magill *et al.*, 2015; Olsson *et al.*, 2009; Park *et al.*, 2018; Rathert, Wyrwich & Boren, 2012; van der Laan *et al.*, 2014). For example, in a review of twenty-eight systematic reviews, Park and colleagues (2018) found that person-centred interventions increased patient outcomes by improving patients' knowledge about their own health, their skills to self-manage their own care, their satisfaction and quality of life. These findings extended to family members who reported less stress, anxiety and depression, while also increasing their satisfaction and improving their relationship with the health-care providers (Park *et al.*, 2018). By evaluating person-centred care, the healthcare organisation can also quantify organisational-level benefits of providing person-centred care, such as improved staff and financial outcomes (Charmel & Frampton, 2008; Magill *et al.*, 2015; Olsson *et al.*, 2009; Park *et al.*, 2018; Rathert, Wyrwich & Boren, 2012; van der Laan *et al.*, 2014). For example, organisational-level outcomes identified in Park *et al.*'s (2018) systematic review included improved financial outcomes arising from reduced hospital admissions, readmissions and length of stay, and staff reports of improved job satisfaction and confidence alongside reduced stress and burnout (Park *et al.*, 2018). Other organisational-level financial outcomes include increased revenue (from attracting new

and returning patients by increasing word-of-mouth referrals) and reduced costs (by improving cost-efficiency and from reducing readmissions, adverse events and malpractice claims) (Charmel & Frampton, 2008; Magill *et al.*, 2015; Olsson *et al.*, 2009; Rathert, Wyrwich & Boren, 2012; van der Laan *et al.*, 2014).

Finally, senior managers can use information derived from person-centred care evaluation and organisational outcomes to incentivise desired behaviours from their staff while holding undesired behaviours accountable based on client feedback on the quality of care experienced (Bokhour *et al.*, 2018; Charmel & Frampton, 2008; Luxford, Safran & Delbanco, 2011). Organisations that provide person-centred care are associated with increased employee pride and satisfaction (Charmel & Frampton, 2008), which can predict client satisfaction and loyalty (Lee, Lee & Kang, 2012). Increased employee pride and satisfaction may also result in higher employee retention rates. The result of retaining high quality staff means lower hiring and re-training costs (Charmel & Frampton, 2008). However, not all staff members are equally committed to their continued development or to the ethos of the organisation to provide person-centred care. Gillespie, Florin and Gillam (2004) found in their qualitative interviews that staff members who were overworked due to low staffing levels and who experienced low workplace morale found it too difficult to provide person-centred care. By properly incentivising desired behaviours and holding undesired behaviours accountable, senior managers could redirect staff motives by rewarding or challenging them to provide the desired level of care (Bokhour *et al.*, 2018; Charmel & Frampton, 2008; Lee, Lee & Kang, 2012; Luxford, Safran & Delbanco, 2011).

In summary, while there have been interventions found to be successful for improving the skills of audiologists to provide person-centred hearing rehabilitation, the environmental context necessary for successful interventions and the criteria used by senior managers for implementing clinical practices such as person-centred care within hearing rehabilitation

organisations are not well established. Although this section has provided evidence suggesting that senior managers are critical for the uptake of person-centred care in healthcare organisations, reviewed studies were predominantly in the European (e.g., Rosengren, 2016) or American (e.g., Bokhour *et al.*, 2018; Luxford, Safran & Delbanco, 2011) medical context and may not represent the criteria used by senior managers of Australian hearing rehabilitation organisations. The Australian hearing rehabilitation context may share similar aspects with other healthcare systems, but findings are not necessarily directly transferable. For example, local funding conditions can affect senior management decision-making, but none of the reviewed studies described how multiple heterogenous funding models - such as the HSP, NDIS, private/self-funded and accident and workplace injury insurances services pathways within Australia hearing rehabilitation (see section *2.2* for more information) - can affect person-centred hearing rehabilitation practice. Another aspect unique to Australia is that the existence of Hearing Australia as a funded statutory authority responsible for providing services under the Government's hearing services programmes (HSP and NDIS). Their responsibilities and service delivery targets extend beyond the normative adult population to include adults with more severe hearing losses with or without other disabilities, children, and Indigenous and Torres Strait Islander populations. As such, the specific drivers relevant to the delivery of services are somewhat different to hospital-based or commercial hearing healthcare organisations providing adult hearing rehabilitation and need to be investigated. Therefore, the next section will identify specific areas that need to be investigated to improve the implementation of person-centred care in the Australian hearing rehabilitation context.

2.6 Addressing the research gaps using a top-down approach to the implementation if person-centred care in Australian hearing rehabilitation organisations

The previous section described the critical role of senior managers for the organisational-wide uptake of person-centred care in other healthcare fields. Research investigating the role of senior managers for implementing person-centred care in other healthcare organisations collectively suggest that person-centred care must be a part of the criteria used by senior managers to determine organisational success. However, little is known about the extent to which person-centred care is valued in organisational success by senior managers within Australian hearing rehabilitation organisations. Moreover, little is known about the extent to which person-centred care is valued in organisational success by senior managers within Australian hearing rehabilitation organisations, how person-centred care is evaluated within hearing rehabilitation organisations, and the impact of providing person-centred care on organisational-valued outcomes. As a chronic disease, age-related hearing loss generally involves multiple appointments and greater patient involvement for successful hearing rehabilitation outcomes, and findings must be applicable for the Australian hearing rehabilitation context. This section discusses the implications of the literature review and outlines the research gaps that arise within the Australian hearing rehabilitation context that need to be addressed for a top-down approach to the implementation of person-centred care in Australian hearing rehabilitation organisations.

The literature review identified two potential barriers that must be addressed in order to demonstrate that person-centred hearing rehabilitation is beneficial for the hearing rehabilitation organisation. Firstly, the criteria used by senior managers of hearing rehabilitation organisations to determine organisational success are relatively unknown. The literature suggests that senior managers should value financial aspects of success centred around hearing device uptake and retention (Taylor, 2016; Kasewurm, 2016). Senior

managers of hearing rehabilitation organisations should not only seek to increase device uptake rates but try to fit higher value devices (Kasewurm, 2016; Taylor, 2016) while keeping device return rates low (Taylor, 2016). Financial literature within hearing rehabilitation suggests that client satisfaction with their hearing aids is considered a key element for device retention and is expected to increase client retention and client referrals of others to the organisation (Kasewurm, 2016; Kochkin *et al.*, 2010; Taylor, 2006, 2016). Setting key performance indicators around device-centric goals (e.g., uptake rates, device values, client satisfaction with their hearing devices) are expected to provide organisational financial success (Taylor, 2016). The relative importance of each of these goals may vary for hearing rehabilitation organisations in the Australian context.

Device-centric goals typically do not factor in device use, potentially negating the purpose of hearing rehabilitation to mitigate the deleterious effects of hearing loss. Kochkin and colleagues (2010) argue that a comprehensive evaluation of hearing rehabilitation success from the organisational perspective should consider if clients use their hearing aids, are satisfied with the benefit they receive from hearing aids across multiple listening environments, report a reduction in hearing handicap, would recommend the clinician or hearing aids or would repurchase the same hearing aid brand in future. Moreover, while the quality of service provided is expected to impact client satisfaction with their hearing aids (Kochkin *et al.*, 2010; Taylor, 2006), how person-centred care fits into organisational success has not yet been clearly ascertained. There is an urgent need to investigate how senior managers of hearing rehabilitation organisations define and evaluate success within the Australian context to advance person-centred hearing rehabilitation.

Secondly, there is little reported on how person-centred care is evaluated within Australian hearing rehabilitation organisations. Healthcare literature describes several methods for evaluating person-centred care, including the use of qualitative or quantitative

methods; patient, family member or clinician self-reports; or the evaluation of global or individual aspects of person-centred care (e.g., de Silva, 2014; Hudon *et al.*, 2011; Rathert, Wyrwich & Boren, 2012; Wilberforce *et al.*, 2016). The conceptualisation of person-centred care affects its evaluation (de Silva, 2014; Constand *et al.*, 2014; Hudon *et al.*, 2011; Rathert, Wyrwich & Boren, 2012; Wilberforce *et al.*, 2016). Tools used in other healthcare fields may not be suitable for the Australian hearing rehabilitation context since hearing rehabilitation may involve one or more appointments of different types; there are different rehabilitation options which may or may not include hearing devices; and there are different funding models and service pathways. Even where there are rare similarities with other healthcare fields (such as physical rehabilitation with or without the use of prostheses), tools to evaluate person-centred care in those healthcare fields have not yet been validated for use within hearing rehabilitation. Audiology researchers have used qualitative methods such as interviews or focus groups (e.g., Grenness *et al.*, 2014b; Poost-Foroosh *et al.*, 2011; 2015) or quantitative methods such as the PPOS survey (Laplante-Lévesque, Hickson & Grenness, 2014; Manchaiah *et al.*, 2014, 2017) to determine client and clinician preferences for person-centred care. Clinical practice of person-centred care has been determined through quantitative and qualitative analyses of video observations (e.g., Ekberg, Grenness & Hickson, 2014, 2017; Ekberg *et al.*, 2014, 2015; Grenness, *et al.*, 2015a, 2015b; Sciacca *et al.*, 2017), but this method requires substantial resources in terms of time, money and expertise to support routine clinical evaluation. Others have modified tools and surveys to assess client-reported experiences of person-centred care, evaluating either global aspects of person-centred care (such as the Measure of Processes of Care for Adults: Ali, 2017), or for certain aspects of person-centred care, for example shared decision making (assessed by the Partners in Health scale: Convery, Meyer, Keidser & Hickson, 2018). However, person-

centred care surveys adapted for audiology still need to be validated against clinical practice and outcomes (Ali, Meyer & Hickson, 2018).

Evaluating the organisational-valued outcomes of providing person-centred care in the hearing rehabilitation context thus requires an investigation of how person-centred care is understood by senior managers and how they currently evaluate it. Evidence-based behaviour change theories can better enable the widespread use of person-centred care evaluation by considering potential facilitators of and barriers to advancing person-centred hearing rehabilitation practice (Barker, Atkins & de Lusignan, 2016; Coulson *et al.*, 2016; Maidment, Ali & Ferguson, 2019; van Leeuwen *et al.*, 2019; Wong & Hickson, 2012). A behavioral science approach is needed to ensure that findings can be used to improve the uptake of person-centred care in hearing rehabilitation organisations (Barker, Atkins & de Lusignan, 2016; Coulson *et al.*, 2016; Michie, Atkins & West, 2014; Wong & Hickson, 2012).

Once these two barriers are addressed, the organisational-valued outcomes of providing person-centred care can be systematically evaluated once the criteria used by senior managers for defining and evaluating organisational success and person-centred care have been identified. The literature review has provided limited research evidence of the benefits of providing person-centred care in hearing rehabilitation (e.g., Aazh, 2016; Singh, Lau & Pichora-Fuller, 2015; Singh & Launer, 2016; Solheim *et al.*, 2018). The limited availability of outcomes on person-centred hearing rehabilitation may further explain the poor implementation of person-centred care in hearing rehabilitation organisations. This thesis was able to evaluate the organisational-valued outcomes of proving person-centred care using a person-centred care (psychosocial communication) intervention developed in a related study for the Australian hearing rehabilitation context. Findings of this thesis will collectively contribute to understanding the environmental factors that affect the low uptake of person-centred care in clinical practice and identify how to improve it in a manner that is useful for

senior managers of hearing rehabilitation organisations, and therefore contribute towards building an evidence base for a top-down approach to the implementation of person-centred care in Australian hearing rehabilitation organisations.

2.7 Conclusion

The literature review provided the background and rationale for the overall and specific research aims of this thesis. The next chapter will provide the rationale for the exploratory-sequential mixed methods design chosen to address the research aims identified from the gaps in the literature (Fetters, Curry & Creswell, 2013).

3 Overall method

The previous chapter outlined the background that defined the aims of this thesis. The purpose of this chapter is to discuss the rationale behind the exploratory-sequential mixed methods design chosen to address the research aims (Fetters, Curry & Creswell, 2013) (see figure 3A). The choice of key terminology used within this thesis is also explained within this chapter. Further details specific to each phase can be found within the two subsequent chapters. The first phase of this thesis aims to:

v) Investigate how senior managers of hearing rehabilitation organisations in Australia define and evaluate success;

vi) Investigate how senior managers of hearing rehabilitation organisations define and evaluate person-centred care;

vii) Identify the perceived facilitators of and barriers to person-centred care evaluation according to senior managers of hearing rehabilitation organisations in Australia, in the context of behavior change theory;

The aim of the second phase of this thesis is:

viii) To evaluate the organisational-valued outcomes of a person-centred care intervention in a hearing rehabilitation organisation setting

These aims contribute to the overall aim of this thesis to provide an evidence base for a top-down approach to the implementation of person-centred care within the Australian hearing rehabilitation context. A schematic of how these aims relate is shown in figure 3A (p.40).

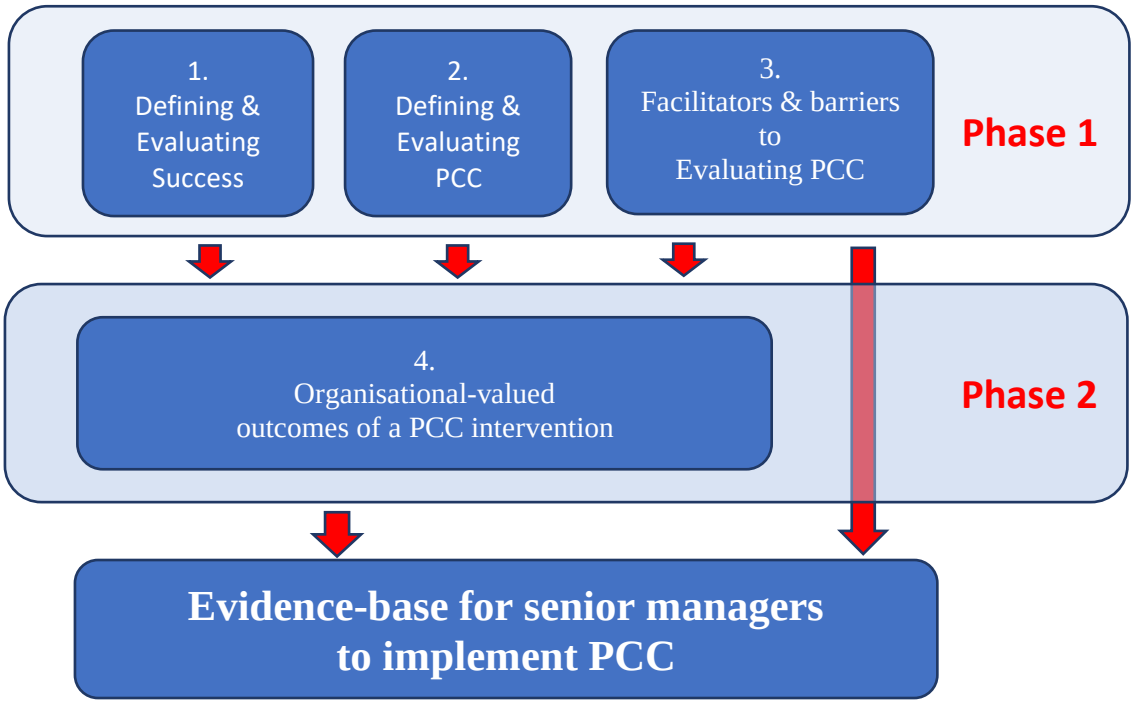


Figure 3A. How the four aims of this thesis contribute to the evidence-base for organisations to implement person-centred care (PCC) within an exploratory-sequential mixed methods design.

3.1 Rationale for an exploratory-sequential mixed-methods research strategy

Since this thesis sought to provide evidence for senior managers to implement person-centred care within hearing rehabilitation organisations, research findings, and subsequent recommendations, must be useable and viable for hearing rehabilitation organisations within their operating environment. A pragmatic paradigm – also known as pragmatism - shaped the research design, by considering the real-world context and recognising that the context may impose constraints around how senior managers view their world (Feilzer, 2010). Pragmatism allowed this research to be conducted within a real-world context to understand its intended and unintended consequences regarding the research's goals and ends, and to understand the factors and the decisions that drive behaviours (Cresswell, 2007; Willis, Jost & Nilakanta, 2007). These findings can then be used to encourage meaningful change to encourage a top-

down implementation of person-centred hearing rehabilitation. The nature of the research questions determined the choice of research strategy. The first three research aims (namely, how success and person-centred are defined and evaluated, and the facilitators and barriers to person-centred care evaluation) must first be investigate before approaching the fourth research aim, which is to evaluate the organisational-valued outcomes of a person-centred care intervention within the Australian hearing rehabilitation context.

A qualitative approach was chosen for the first phase. Previous research had identified potential indicators of organisational success (e.g., Kasewurm, 2016; Taylor, 2016), but had not adequately explained the reasons and choice for these criteria that is applicable to different Australian hearing rehabilitation organisations. Similarly, the role that person-centred care has in organisational success and its clinical evaluation in Australian hearing rehabilitation organisations was not investigated. A qualitative approach is useful for exploratory studies as it can capture more detail beyond existing *a priori* assumptions by allowing for a greater depth and variety in findings (Barbour, 2001; Sandewloski, 1995; Willis, Jost & Nilakanta, 2007). A qualitative approach helps us understand not just *what* organisations deem successful, but *why*, *when* and *how* success is evaluated in the way it is. In order words, a qualitative approach will better explain how senior managers of hearing rehabilitation organisations make decisions. Qualitative approaches have been successfully used to understand how hearing rehabilitation clients define person-centred care (e.g., Grenness *et al.*, 2014b) or how managers achieve person-centredness within their healthcare organisations (e.g., Bokhour *et al.*, 2018; Luxford, Safran & Delbanco, 2011; Rosengren, 2016).

The aims of the first phase have thus been separated into five research questions to allow each question to be treated in accordance with the philosophical assumptions required

for each research question (see table 3A). Philosophical assumptions for the qualitative phase are discussed in detail within chapter four since they do not pertain to the quantitative phase.

Table 3A. The five qualitative research questions for the first phase.

i) How do senior managers of hearing rehabilitation organisations in Australia define success?

ii) How do senior managers of hearing rehabilitation organisations in Australia evaluate success?

iii) How do senior managers of hearing rehabilitation organisations in Australia define person-centred care?

iv) How do senior managers of hearing rehabilitation organisations in Australia evaluate person-centred care?

v) What are the perceived facilitators of and barriers to person-centred care evaluation according to senior managers of hearing rehabilitation organisations in Australia, in the context of behavior change theory?

In other fields of healthcare, person-centred care has been associated with positive outcomes for clients, clinicians and the organisation (e.g., Charmel & Frampton, 2008; Magill *et al.*, 2015; Olsson *et al.*, 2009; Park *et al.*, 2018; Rathert, Wyrwich & Boren, 2012; van der Laan *et al.*, 2014), but the outcomes of providing person-centred hearing rehabilitation for the hearing rehabilitation organisation are not well established. Findings from the first phase aimed to provide the criteria needed to evaluate the outcomes of providing person-centred care in the context of Australian hearing rehabilitation organisations. Organisational-valued outcomes identified from the first phase thus allowed the second phase to use a quantitative approach to evaluate the organisational-valued

outcomes of a psychosocial communication intervention developed in a related study. Since a quantitative approach could be used in the second phase, hypotheses were able to be generated based on the findings from the first phase. Details pertaining to the quantitative second phase including its design, interventions, materials, hypotheses, procedure and analysis are provided in chapter five.

This approach of using an exploratory, qualitative phase preceding a quantitative second phase is known as an exploratory-sequential mixed-methods design (Fetters, Curry & Creswell, 2013). One key benefit of pragmatism is that it allows for a mixed-methods design by not being wed to a single research method or procedure. Rather, pragmatism can combine the best of quantitative and qualitative research methodology to produce a better understanding of the dynamic reality in which hearing rehabilitation organisations operate, by choosing the most suitable approach to obtain applicable research findings (Morgan, 2014). Scientific rigour for the qualitative and quantitative research methods stem from the choice of data collection and analysis approaches, and acknowledgement of the studies' limitations. The mixed-methods study design in this thesis overcomes some of the limitations from solely qualitative or quantitative approaches; the subsequent quantitative phase therefore provides a cross-check and validates results from the qualitative phase and vice versa (Fetters, Curry & Creswell, 2013).

3.2 Notes on terminology

Prior hearing rehabilitation research has used the medical term *patient*-centred care (e.g., Grenness *et al.*, 2014a; 2014b) or *family*-centred care (e.g., Singh *et al.*, 2016; Turnbull, 2016; Scarinici, Worrall & Hickson, 2012), while more recent textbooks have used the terms *patient- and family-centred care* (PFCC) (Meyer, Hickson & Scarinci, 2019) or *person-centred audiological rehabilitation* (PCAR) (Manchaiah & Danermark, 2017). Although these terms are largely interchangeable within hearing rehabilitation, the term *person*-centred

care is preferred for this thesis for several reasons. Firstly, given that this research is conducted within an Australian hearing rehabilitation context in non-medical settings, the term "*patient*"-centred care was deemed unsuitable. Secondly, while "*client*" is also suitable, "*person*"-centred care incorporated a more holistic view of the person and subconsciously implies a meeting of persons (i.e., between the clinician and the client and key communication partners) which better reflected the intended concept (Lines, Lepore & Wiener, 2015).

The term "hearing rehabilitation organisations" was chosen to represent audiology clinics that provide hearing rehabilitation. Audiology clinics in Australia may choose to provide only diagnostic services (such as within most hospitals), or specialised paediatric or vestibular assessment and rehabilitation services. Given that this research is investigating how to improve the uptake of person-centred care within hearing rehabilitation, we have chosen to focus research only within audiology clinics that provide hearing rehabilitation.

3.3 Summary

This chapter described the overall method for the exploratory sequential mixed methods design and the general terminology used within this thesis. Further methodological details specific to each study, such as the philosophical considerations and assumptions of the qualitative first phase and the intervention design in the second phase, is found within both subsequent chapters.

4 Phase one: Investigating the criteria used by senior managers to define and evaluate success and person-centred care

4.1 Introduction

The previous chapter discussed the overall method for the thesis and identified the research questions necessary to address the aims of the first phase. The present chapter provides the philosophical considerations and assumptions pertaining strictly to the qualitative research (including data collection procedure and analysis methods), before providing results and implications of the first phase of the exploratory sequential mixed-methods study. The five research questions for this phase are as follows:

i) How do senior managers of hearing rehabilitation organisations in Australia define success?

ii) How do senior managers of hearing rehabilitation organisations in Australia evaluate success?

iii) How do senior managers of hearing rehabilitation organisations in Australia define person-centred care?

iv) How do senior managers of hearing rehabilitation organisations in Australia evaluate person-centred care?

v) What are the perceived facilitators of and barriers to person-centred care evaluation according to senior managers of hearing rehabilitation organisations in Australia, in the context of behavior change theory?

4.2 Methods

4.2.1 Qualitative research considerations and assumptions: Ontology, epistemology, methodology and axioms

To ensure that the qualitative research goals and desired ends were suitable, careful consideration was given to ontological, epistemological, methodological and axiomatic

assumptions (Cresswell, 2007). The pragmatic paradigm satisfies the ontological and epistemological assumptions required for this research (Morgan, 2014). Ontology is concerned with the nature of reality, being or existence (Willis, Jost & Nilakanta, 2007). The ontological principle for pragmatism is that "truth is what works at the time: it is not based in a dualism between reality independent of the mind or within the mind" (Creswell, 2007, p.23). Epistemology is based on how and what we can know about reality, being or existence (Willis, Jost & Nilakanta, 2007). From an epistemological perspective, pragmatism does not focus on the antecedent conditions, but rather on the actions, situations and consequences of the research inquiry (Creswell, 2007): in other words, research findings have more weight than unverified prior theories.

The methodology chosen was semi-structured, one-to-one interviews with senior managers of hearing rehabilitation organisations at a location of their convenience. Semi-structured interviews have been used in previous studies to elicit information from managers of healthcare organisations which provide person-centred care (e.g., Bokhour *et al.*, 2018; Luxford, Safran & Delbanco, 2011; Rosengren, 2016). One-to-one interviews are efficient and facilitate rapport building between the researcher and interviewee. Further, it was expected that senior managers would feel uncomfortable sharing confidential information within a group setting since organisational data is rarely shared.

The qualitative researcher actively co-creates the data in qualitative research (Barbour, 2001), and axiomatic assumptions relevant to this phase are discussed through the personal characteristics of the face-to-face interviewer and research team. As the main researcher, I (GW) conducted all interviews and was responsible for transcribing, coding and analysing the data. I am hearing impaired, a clinical audiologist, and had previously completed an undergraduate degree in commerce. I had limited previous experience in qualitative research prior to commencing this research but received formal training by

attending conferences and workshops before data collection and was supported by experienced qualitative researchers in my research team (CB, CM and RC). Although half the participants were personally known to me[7] prior to the interviews, the semi-structured approach to the interviews ensured that subjective bias was reduced.

Research team members supported the topic guide development and data analysis approaches used for this research. The research team members also assisted in the selection of senior management participants. All three members of the research team were HEARing CRC funded employees and PhD supervisors of the main researcher. They had each previously conducted and published several research projects using qualitative methods and within audiology.

4.2.2 Purposive sampling and participant recruitment

Since the purpose of the qualitative exploratory phase was to obtain a diverse representation of views from senior managers of various hearing rehabilitation organisations across Australia, we used a purposive sampling strategy to provide greater variety to our findings by seeking variation across organisations and managers (Barbour, 2001; Morse & Richards, 2002; Patton, 2015; Sandelowski, 1995). Eligible organisations had to provide hearing rehabilitation services while representing different organisation types (commercial, not-for-profit, university, manufacturer-owned, Government), sizes (small to large) and locations (around Australia). Participants must be in a senior management position (i.e., able to influence overall clinical practice within the organisation) and represent different years of experience, gender and clinical backgrounds (audiologist, audiometrist or non-clinical). Our purposive sampling strategy ensured a diversity in participants not previously explored within audiology.

[7] I had worked for two participants and had met four others at prior audiology events.

Potential participants were identified based on our criteria through the use of a comprehensive web search (including LinkedIn: www.linkedin.com) and the research team's own contacts. To establish the study's credibility and increase participation rates, a personal invitation letter was sent to each potential participant signed by research team member RC, the CEO of the HEARing CRC. We recognised that senior management participants were busy and invited them to choose their preferred interview location. By conducting interviews in person, managers could familiarize themselves with the researcher, allowing rapport to be built and allowing for a greater depth of exploration during the interviews. No inducements were offered to participants. Some participants declined to participate due to time commitments or unabated concerns about confidentiality pertaining to sensitive commercial data. Three invitees recommended senior management colleagues within their organisation. A total of forty-nine invitations were sent, resulting in sixteen senior managers from twelve HROs agreeing to participate. Senior managers from hearing rehabilitation organisations owned by Ear, Nose and Throat (ENT) specialists and hearing aid manufacturers participated but were denoted under alternative categories instead due to commercial sensitivities. Participants were denoted in the analysis as follows: participants from small (S), medium (M), large (L) commercial organisations; Government (G); not-for-profits (N); and University (U). De-identified participant characteristics are provided in the results.

4.2.3 Topic Guide Development

A single topic guide was developed for the main researcher to explore the research questions in semi-structured interviews. This ensured that participants were asked the same main questions for consistency across participants. Participants were not allowed to view the topic guide. The research team refined the topic guide following two practice interviews and three initial interviews. The contents of the topic guide are described in this section and are found in appendix 8.2.

Each interview began with an explanation of the research goals followed by questions exploring the manager's role and the organisational ethos to establish initial rapport. Participants were then asked to define what success meant to them within the context of their hearing rehabilitation organisation. Participants were asked to provide a rationale for their responses and their responses were probed to ascertain further meaning and depth. Participants were then asked how they evaluated each element of success that they had defined, including the rationale and method of evaluation, and the consequence of success or failure against their criteria.

Participants were only asked questions on person-centred care evaluation after describing how they define and evaluate success. Participants were asked about their familiarity with person-centred care and to define the term. Participants were then asked how they evaluated person-centred care in current clinical practice within their organisation. Reported evaluation methods were probed to understand rationale and use.

Questions exploring the perceived facilitators of and barriers to person-centred care evaluation were then explored according to the COM-B model (Michie, Atkins & West, 2014). The COM-B model is a behavioural science approach developed from the integration of nineteen frameworks of behaviour change, and identifies the capabilities (C), opportunity (O) and motivation (M) necessary to change a particular behaviour (B) (Michie, Atkins & West, 2014; Michie, van Stralen & West, 2011). Capability refers to having the physical strength, knowledge, skills and stamina to perform a particular behaviour; opportunity refers to how conducive the physical and social environments are for the target behaviour to occur; and motivation refers to how motivated participants are to engage in the target behaviour at the relevant time rather than in a competing behaviour (Michie, Atkins & West, 2014). For this study, the target behaviour to improve was the evaluation of person-centred care in hearing rehabilitation organisation. Topic guide questions posed to the participants were

therefore framed around exploring the perceived facilitators and barriers to person-centred care evaluation by asking participants to report on their capabilities (e.g., *What options/tools are you familiar with for evaluating person-centred care?*), opportunities (e.g., *Does your organisation have the time and resources to evaluate person-centred care?*), and motivation (e.g., *How important is it to you and your organisation to evaluate person-centred care?*). Consistent with the pragmatic overall design of this research, participants were asked an additional question about their own criteria for implementing person-centred care evaluation within their organisation to capture anything missed by the COM-B process.

4.2.4 Procedure

Participants were individually interviewed by the main researcher (GW) using the topic guide at a location of their choice between January and August 2017. Most participants chose to be interviewed at their office or home. Interviews at participant worksites allowed extra materials to be provided to the main researcher, which allowed data to be triangulated from various sources. Each interview lasted an average of 71 minutes (range: 59-93 minutes). Interviews were audio-recorded on an iPad mini 4 and later transcribed for analysis. Audio-recorded interview data were transcribed and checked by the main researcher prior to data analyses.

4.2.5 Analyses

The philosophical approach and the nature of the research question determines the choice of qualitative data analysis (Barbour, 2001). The pragmatic paradigm chosen for the overall research provided freedom for each research question to be analysed differently (Barbour, 2001; Cresswell, 2007; Willis, Jost & Nilakanta, 2007).

The first research question (how senior managers define success) was analysed thematically (Braun & Clarke, 2006). Since no *a priori* framework best explains how senior managers of Australian hearing rehabilitation organisations define success, thematic analysis

was chosen to inductively identify common themes across participants by exploring how individuals ascribed meaning to their experiences (i.e., how participants defined success) and how the broader social context affects those meanings (e.g., their personal, organisational and operating contexts) (Braun & Clarke, 2006). According to Braun and Clarke's (2006) six steps for thematic analysis, interviews were first transcribed and re-read at a semantic level before initial codes were generated in nVivo 12 (QSR International, Melbourne, Australia, http://www.qsrinternational.com/). Initial coding relied on using the words of participants, which were then arranged into categories and sub-categories. Samples of codes were checked independently by the research team on multiple occasions, resulting in several iterations of coding and categorisation. Two of the research team members (CB and CM) were experienced in thematic analysis, and disagreements were discussed in collaboration with the main researcher prior to a consensus being reached. Categories were then grouped into themes and sub-themes. For example, the following quote from a small business owner, "*I guess [the accountant's] goal is always to make it as successful and profitable as possible, which may be little bit contrary to mine. I just want to make enough to get by*", was coded as "[Owner's] goal is to make enough to get by". Grouped with statements from other organisational types, it was later categorised as "Owner's goals", under the sub-theme of "Who determines financial success" and the theme of "Financial success". Themes were reviewed for consistency with the data set prior to naming. Where possible, codes within each theme had to meaningfully converge to the theme (internal homogeneity) while reflecting ideas separate from another theme (external heterogeneity) (Braun & Clarke, 2006). For the final step, this thesis chapter reports the final names and definitions of themes in accordance with the 32-point COREQ procedure (Tong, Sainsbury & Craig, 2007). A table of results can be found in appendix 8.3.

The second research question (how senior managers evaluate success) required an approach that could suitably classify the wide-ranging methods used by senior managers to evaluate success. Since thematic analysis was used to analyse the closely related first research question, the inductive approach of template analysis could link how senior managers evaluated success with how they defined it (Brooks *et al.*, 2015). Template analysis is a form of thematic analysis that relies on a prior framework for hierarchical coding while being flexible enough to identify new relationships within the initial framework (Brooks *et al.*, 2015). It allows for style and format considerations to best present the data in a manner that is easy to understand (Brooks *et al.*, 2015). Template analysis was also conducted using six steps (Brooks *et al.*, 2015; King *et al.*, 2012). The first three steps were similar to Braun and Clarke's (2006) thematic analysis: data familiarity via re-reading and transcription, coding of the data to generate preliminary codes, which were then organised into meaningful clusters and emergent themes. Next, emergent themes were applied into the thematic analysis from the first research question. Since there was considerable overlap with the first research question, the content of the template was refined across several iterations with support from the research team. Consistent with the overarching pragmatic paradigm, once the content of the template was deemed sufficiently representative of the data corpus, the template was finalised and applied to the full data set (Brooks *et al.*, 2015). Results are reported within this chapter, with a table summarising the findings available in appendix 8.4.

The third research question explores how senior managers define person-centred care. The purpose of this question was to check participants understanding of the term "person-centred care" prior to exploring how they evaluate it. Data was analysed categorically based on how person-centred care was conceptualised in the literature review. The fourth research question asks senior managers how they evaluate person-centred care. As the results in this chapter will show, most participants did not formally evaluate person-centred care within

their organisation. Thus, descriptions of what senior managers currently use within their organisation are described directly within the results.

The fifth research question explored the perceived facilitators of and barriers to person-centred care evaluation according to senior managers of hearing rehabilitation organisations in Australia. The various facilitators and barriers to person-centred care evaluation could be classified into the COM-B deductively through a framework analysis approach (Gale, Heath, Cameron, Rashid, & Redwood, 2013; Michie, Atkins & West, 2014). The Framework Method is comprised of seven stages (Gale *et al.*, 2013). The first two stages consist of transcription and familiarisation with the interview. In the third stage, the data is coded into one of the categories – for this research, facilitators and barriers were coded into COM-B categories of capability, opportunity and motivation (Michie, Atkins & West, 2014). Given that most senior managers did not currently evaluate person-centred care in their hearing rehabilitation organisation, we chose to code both actual and perceived facilitators and barriers to consider the views of all participants, consistent with approaches used in other COM-B research (e.g., Flannery *et al.*, 2018; Weatherson *et al.*, 2017).). The research team (CM and CB) were also experienced in COM-B analysis and checked the coding and categorisation on multiple occasions. Disagreements in coding and categorisation were resolved in discussion with the main author. In the fourth stage, codes were developed into a working analytical framework before they were applied (fifth stage) and charted (sixth stage. The final 198 codes represents 13 unique facilitators and 21 barriers listed in appendix 8.5. A summary diagram is shown in figure 4B.

4.2.6 Rigour

Establishing scientific rigour for qualitative research is necessary to ensure results accurately represent participant views in accordance with the research question. This does not mean that results are merely repeatable or valid as for positivist quantitative research (Rolfe, 2006;

Sandelowski, 1993). There is no universally accepted method for establishing rigour in qualitative research although there are several commonly used techniques (Barbour, 2001; Morse & Richards, 2002; Sandelowski & Borrosso, 2002). Several strategies for establishing scientific rigour were used in this research.

The first strategy for establishing rigour was the inherent consistency of the philosophical approach within the choice of qualitative method and analysis approaches (Barbour, 2001). The pragmatic paradigm that guided this research allowed for thematic, template and framework qualitative data analyses. Ontological, epistemological, methodological and axiomatic considerations for a pragmatic paradigm to the qualitative research were provided. Each analysis approach had a strong evidence-base and rationale for use. Thematic analysis has been used in audiology to understand the perceptions of older adults towards internet-based hearing aid delivery (Knudsen *et al.*, 2013), client participation in hearing help-seeking and rehabilitation (Chandra & Searchfield, 2016), the psychosocial experiences of clients with hearing loss (Heffernan *et al.*, 2016), or the client journey of adults with hearing impairment (Manchaiah, Stephens & Meredith, 2011). Thematic coding and analysis have also been used in other healthcare fields to identify senior management and employee perspectives towards person-centred care practice within their healthcare organisation (Luxford, Safran & Delbanco, 2011; Kirkley *et al.*, 2011). The choice of template analysis for the second research question to expand the results of the thematic analysis allowed for better clarity and understanding of findings, serving to verify the internal homogeneity and external heterogeneity of the first research question's themes. Thus, the template analysis provides a robust framework of how senior managers evaluate success based on their provided definitions. This data could then be used to inform the next quantitative phase in an integrated way (Fetters, Curry & Creswell, 2013). This ensured that findings were not merely ascetic or rhetorical, but are epistemologically valid to readers

(Porter, 2007). This also allows the reader to judge the validity of research findings based on the choice and consistency of methods used, rather than on criteria emphasised by the author on how well the report is written (Sandelowski & Barroso, 2002). Finally, previous COM-B research has used qualitative research to identify facilitators and barriers to an intended behaviour change (Atkins *et al.*, 2017; Avery & Patterson, 2018; Flannery *et al.*, 2018; McDonagh *et al.*, 2018; Weatherson *et al.*, 2017), and has been recommended (Coulson *et al.*, 2016) and used (e.g., Barker, Atkins & de Lusignan, 2016; Maidment, Ali & Ferguson, 2019; Rolfe & Gardner, 2016; van Leeuwen *et al.*, 2018; 2019) in hearing rehabilitation research. By using a validated and evidence-based framework, results can be used in a meaningful way to pursue intended behaviour change.

The second strategy for establishing rigour was to adhere to a purposive sampling method. Small sample sizes in qualitative research reduces the generalisability of results and each participant has the potential to greatly influence overall research findings. Since the purpose of the qualitative exploratory phase was to obtain a diverse representation of views across senior managers of various hearing rehabilitation organisations across Australia, we used a purposive sampling strategy to provide greater variety to our findings by seeking variation across organisations and managers (Barbour, 2001; Morse & Richards, 2002; Patton, 2015; Sandelowski, 1995). Data saturation generally occurs when no new categories or themes emerge by each subsequent participant and so signals the end of data collection (DiCicco-Bloom & Crabtree, 2006). However, even though data saturation was achieved from the twelfth participant, we chose to recruit participants to fulfil the pre-established purposive sampling criteria. The consistency of subsequent participants' responses with earlier those of participants demonstrated the reliability of our findings and established that data saturation was truly achieved. It is worth noting that the sixteen participating senior managers were collectively responsible for more than 20% of Australian clinicians

(audiologists and audiometrists) at the time of interviews, suggesting that even for a qualitative sample, participants' views affected a substantial number of clinicians across Australia.

The third strategy was the consistency of coding and the use of coding checks by the research team. The main researcher was responsible for all transcription and coding. This ensured consistency across the data corpus and subsequent analysis. After initial coding of four transcripts, research team members checked and scrutinised coding by the main researcher to ensure that each analysis approach was applied consistently. Since the main researcher remained closest to the data, the final decision about codes, categories and themes rested with the main researcher (Barbour, 2001). This was important when the coding process had to be updated. For example, participants were frequently used colloquial expressions and referred to implied knowledge during interviews. Special care was taken during coding to maintain the key words and descriptors used by participants to reflect a semantic analysis approach (Braun & Clarke, 2006), but this was not always possible. Through an iterative coding process, a latent analysis was found to better reflect what participants reported, by coding what participants meant and not just what they said (Braun & Clarke, 2006).

One potential limitation of the semi-structured interviews with this participant group was that reports would have to be taken at face value. Given the absence of literature pertaining to the research questions, there was limited publicly available information available to verify participant responses. Although participants had no reason to provide false information knowing that their identities remain confidential, the privileged information shared during interviews would not be easily verified since it would not normally be available outside of the organisation, and in some cases, outside of the senior management team. To overcome this barrier, interview data was triangulated with field notes and organisation-specific questionnaires to overcome bias from participant self-report. Field notes taken for

each interview comprised of a short diary to capture the interviewer's impressions of the candidate not apparent on audio recordings. Half of the twelve participating organisations shared questionnaires used internally in the evaluation of success, such as client experience surveys, hearing aid benefit surveys, client history forms and receptionist-administered surveys.

4.2.7 Ethics approval

Ethics approval for the first phase (appendix 8.1) was obtained from The University of Melbourne Behavioural and Social Sciences Human Ethics Sub-Committee (HREC: 1647491) and The University of Queensland Human Research Ethics Committee A & B (Clearance number: 2016001791/1647491) prior to data collection, and all participants provided written informed consent. Research adhered to the National Statement on Ethical Conduct in Human Research (National Health and Medical Research Council, 2007).

4.3 Results

4.3.1 Sample characteristics

Tables 4A and 4B describe organisation and individual participant characteristics respectively. All Australian states and territories were proportionately represented, with most organisations operating in the three most populated states of Victoria, New South Wales and Queensland. All organisations provided hearing aids. Implantable hearing devices were not widely offered: five organisations fit bone anchored hearing aids and three offered cochlear implants. Other rehabilitation services offered by organisations included speech/lip reading (n = 2), group training (n = 4) and communication training (n = 6). In terms of funding, all organisations provided hearing rehabilitation to clients holding private healthcare insurance and nearly all (n = 11) organisations were able to service clients who were self-funded (the exception being the Government-owned organisation restricted from servicing such clients). Most organisations provided services with Federal funding (under the Hearing Services Programme) or through their state-nominated workers' compensation insurance scheme. At the time of interviews, nine organisations were able to access funding for clients through the National Disability Insurance Scheme.

Fourteen senior management participants were clinical audiologists or audiometrists, with ten still practicing as active clinicians. Six participants had formal business or accounting qualifications. Nine participants were female and seven were male. Participants had a mean of 19.5 years of experience in audiology (range 7.5 to 33.3 years), with a mean of 8.4 years as a senior manager within their current organisation (range 1.5 to 20 years), suggesting that all participants were familiar with the context for audiology. Conservative estimates suggest that the sixteen senior managers were collectively responsible for 24.7% (741 of approximately 3000) of all audiologists and audiometrists who were members of Australian professional bodies.

Table 4A. *Characteristics of participant organisations (n = 12)*

Purposively sampling criteria		Not purposively sampled		
Organisational types		Funding access		
Small (5 or fewer staff)	2	Private health insurance	12	
Medium (6 to 20 staff)	3	Private self-funded	11	
Large (More than 20 staff)	2	Workcover/Worksafe	11	
Not-for-profit	2	Hearing Services Programme (HSP)	11	
University clinic	2	National Disability Insurance Scheme (NDIS)	9	
Government	1	Medicare	7	
Locations represented		Services offered	Assessment	Rehabilitation
Victoria	6	Adult Hearing	12	12
New South Wales	5	- Hearing Aids		12
Queensland	5	- Communication training		6
Australian Capital Territory	4	- Speech/Lip Reading		5
South Australia	2	- Group Training		4
Western Australia	2	- Cerumen removal		8
Tasmania, Northern Territory	1	- Bone anchored hearing aids		5
& Other Australian territories^		Cochlear Implant	3	3
		Tinnitus	9	8
		Auditory Processing Disorder	7	4
		Paediatric Hearing	8	3
		Vestibular	3	1

^ Other Australian territories collectively include Jervis Bay Territory, Ashmore and Cartier Islands, Australian Antarctic Territory, Christmas Island, Cocos (Keeling) Islands, Coral Sea Islands, Heard Island and McDonald Islands, and Norfolk Island.

Table 4B. *Demographic characteristics of participant senior managers (n = 16)*

Purposively sampling criteria			Not purposively sampled	
Years of Experience			Highest qualification	
... in Audiology	19.5	(range 7.5 to 33.3)	PhD	1
... in Senior Management	12.5	(range 1.5 to 30.0)	Master's Degree (Audiology/MBA)	10
... in the Organisation	10.4	(range 1.9 to 23.8)	Postgraduate Diploma in Audiology	2
... in Senior Management for the Organisation	8.4	(range 1.5 to 20.0)	Diploma in Audiometry	2
			Nothing formal	1
Background				
Clinical – Audiology	11			
Clinical – Audiometry	3			
Non-clinical – Financial	6			
Gender				
Female	9			
Male	7			
Organisational types				
Small (5 or fewer staff)	2			
Medium (6 to 20 staff)	3			
Large (More than 20 staff)	3			
Not-for-profit	3			
University clinic	5			
Government	1			

4.3.2 How senior managers of hearing rehabilitation organisations define success

The thematic analysis revealed that senior managers defined success through two interrelated core themes (client success and financial success) and three broader themes (staff factors; the organisation's ethos, mission and vision; the manager's role within the organisation) as shown in figure 4A below. A list of all categories, sub-themes and example quotes can be found in appendix 8.3.

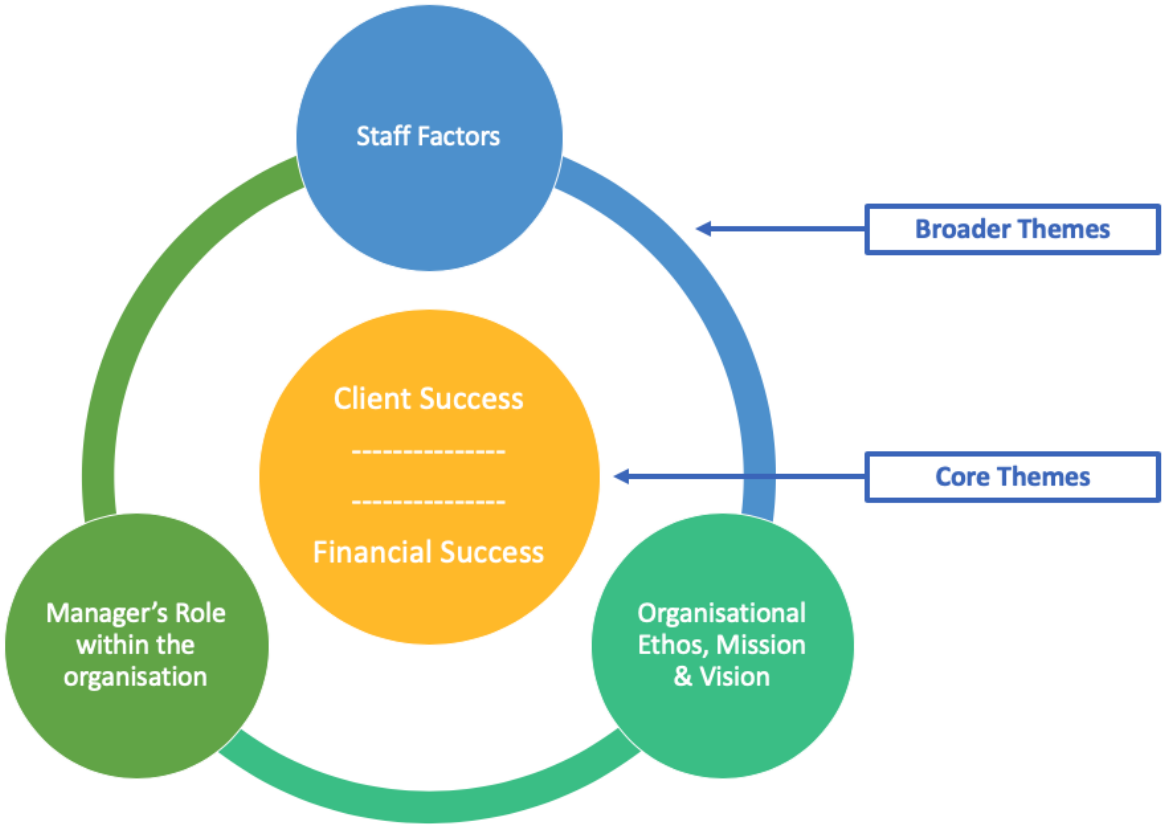


Figure 4A. Thematic analysis findings of how senior managers defined success

4.3.2.1 Core Themes

4.3.2.1.1 Client success

Client success was the highest goal and the most important determinant of success for all participants. "Clients" primarily referred to the person with hearing impairment in all organisations. However, it also included others who encountered the organisation, such as

family members of persons with hearing impairment, students (for university clinics), ENT specialists and medical professionals (for ENT-owned clinics) or external collaborators (for head offices in larger organisations).

Client success was achieved when clients were happy (N3, S1, S2, U2, U3), satisfied (G1, N2, U3, L1, L2), had their needs met (N3, L2), had their goals met (L3, N2), achieved their clinical outcomes (U2), were cared for (G1, N3), or noticed an improvement in their hearing (L2):

> *This is my success and biggest success and I always bring it over to my people, is when the customers are happy. So what we do, we do everything, in order to satisfy the customer, with his special need of better hearing. (L2)*
>
> *Success is having a happy client: A client who comes in and we fulfil their needs. (N3)*
>
> *The primary goal is the patient outcome. The best outcomes are their goal. (U2)*
>
> *It's really important to me that the client satisfaction is high, so that would probably be my number one. (G1)*
>
> *Success to me I think is… knowing we've been able to help clients to achieve their goals (L3)*

Client success must be ongoing and long-term (L2, U3):

> *We all feel that we have a happy and satisfied client when they leave, after their initial stage of the rehab programme, and then when we touch in, and when they come in for follow-ups, as part of the ongoing relationship that we have with them, then we actively seek if there's any problems, and try to improve them. (U3)*

Client success must extend beyond clinical outcomes:

> *I am also very concerned that people are satisfied, not just in clinical outcomes, but that people feeling satisfied with the service and happy with what they've been provided, and their needs have been met. (G1)*

Client needs, goals and expectations must be derived from the client's point-of-view:

> *What did you expect you were going to get when you came here, and did we meet it? Did we exceed it? (L1)*

The expected consequences of achieving client success were improved client adherence (including hearing device uptake and use) (L2, S1, N1), retention (U4, M1, L2) and referrals to others (M2, L2). For example, satisfying client needs was expected to increase adherence to hearing aid recommendations:

> *I will say that the biggest success we can have, and under this you can subside all our other successes is when we are successful in satisfaction of our client's needs. Because then he will follow our advice to take the right product (L2)*

Clients will return if they were happy with the ongoing service from the organisation (U4, L2) and may repurchase future hearing devices from the organisation (L2).

> *Our target is we want… to make them really happy for life… and we actually expect from them that after – if it's five years when they can get a new hearing aid - that they should come back to us. (L2)*

Failure to achieve client success would reduce client retention:

> *Because at the end of the day, people will vote with their feet. And if they choose not to come back to you, it's because you haven't met their*

> *expectations… A lot of people won't necessarily tell you that they are not happy and they're going somewhere else, they'll just go somewhere else. (L1)*

Positive word-of-mouth referrals was a marker of success:

> *People referring me to their friends means I'm successful at what I do. (M2)*

Senior managers reported their belief that they could achieve client success through several methods. Audiological factors were essential. Clinicians had a key role to ensure that hearing devices were properly fitted (L2). Hearing devices had to provide good sound quality at a comfortable level for clients (S2, L1) and provide benefit to ensure use (S2). Senior managers expected their organisations to provide the latest forms of technology and clinical practice (U2, L2) that was evidence-based (N2, U1, U2).

It was also important that strong clinical processes meant that clients had a positive experience with the organisation (G1, M1), and that clients received "high quality services" (N1, M3, U2). Clients were offered hearing aid trials (S2) and hearing rehabilitation (M1) and encouraged to return for additional appointments as needed to achieve hearing rehabilitation outcomes (M1, S2):

> *Where clinically you might feel that this client needs to come back for another follow or if you could just have another half an hour with this person to work on putting the mould in or something like that, that you would get a better outcome. (M1)*

Each organisation had to create better value for their client compared to their competitors, including the option of not taking action:

> *Are they continuing to choose me against all the other options, including doing nothing? …the biggest competitor is it's not worth the hassle, so you*

> *have to deliver more value than the time investment that they're going to make to come and see you. (L1)*

Ethical practice was deemed very important for several senior managers for achieving client outcomes (N2, N3, M1, L2, U4).

> *The most important things to me is, I would say, professional and ethical behaviour of staff. (N2).*

A major strategy reported by senior managers to achieve client success was the use of person-centred behaviours. Clinical processes must be designed to be person-centred (L3, M1, M2, M3) and evolve to meet changing client needs (G1, L1, N2):

> *We really do everything with that in mind. So I think that is hopefully themed through when we're developing policies and procedures, and the internal communications. It's all about putting the client first at the centre, and what's best for the client not what's best for self. (L3)*

Senior managers reported several person-centred behaviours within their organisation for achieving client success. It was critical to listen to the client to identify their goals and needs. Client needs must be looked at holistically:

> *What are the needs of the patient in terms of hearing evaluation? Not only in terms of their hearing, but also in terms of their general health and well-being. So we have got a big responsibility of psychological and emotional and social well-being of the person to look for. (M3)*

Personalised care is essential. Hearing assessments should be personalised to reflect client needs, such as by testing clients in noise (N2, N3). Clients should be offered choice if they want their hearing results explained in detail (L3), and if the results are explained, they

should be explained in a way that makes sense to them (M1, U4). Clients must receive personalised solutions otherwise they can purchase alternative options from the internet (L2). Personalised care can also be achieved by listening to the client:

> *We listen to the client and make sure that what we do for this person is not necessarily the same as what we do for that person. (M1)*

Clients need to be given good quality information (N1) and effective options to make informed decisions (M1, M2). This reduces the pressure on clients (M2, M3):

> *And providing the best service, in my view, is giving people a full range of options so they can make an informed decision and that takes the pressure off. (M2)*

As healthcare clients and services evolve, clients and their family members (N3, S1, U3) expect to be more involved in the rehabilitation process. Clinicians should let the client lead the discussion (U3) but not be directed by the client (N3, U4). The clinician's role is to patiently guide the client's free decision (N2, M3, U3, S2) in partnership with the client (N1) and their family members (U3):

> *It should be the free choice of the client himself to choose the appropriate plan. The clinician can only guide in terms of needs. (M3)*

Clients should proceed with a hearing aid only if they want to (N1, U3), have agreed to (N1), and are enthusiastic about commencing rehabilitation (U3):

> *So if they get a hearing aid, they want it. They have agreed to it, that that's the thing they need. They are not getting it because we talked them into it, or because we are just mining a government subsidy (N1)*

Ultimately, person-centred care was seen as necessary for the organisation to achieve the benefits of client success. For example, being person-centred was expected to increase word-of-mouth referrals:

> *I think in getting our market where word of mouth is very powerful, by ensuring that you lead from a concept of being patient focused, that you can't lose with that. (M1)*

And person-centred care was seen to improve client satisfaction, rehabilitation uptake and use (S1):

> *I guess working in other places that I don't think were particularly patient centred, the satisfaction rate of the client seems to be much lower. I think the uptake of rehabilitation is lower. I think of the client's we fit they, with the surveys that we get back, seems to have a very high usage rate compared to the average issues that you see in talks and conferences. (S1)*
>
> *Because we believe that if you rush things, you are really pushing people through to something that they are not necessarily ready for, or have agreed to, and we know that giving people that time, and not forcing them into a decision at their first appointment, means that they are more likely to be in full agreement of it, when they get around to it. I mean, what we know is, that once our clients get hearing aids, they tend to keep them. We have a very small return rate. And they tend to use them. (N1)*

4.3.2.1.2 Financial success

Financial success in the form of financial viability and profitability are necessary for any business. One senior manager reported that:

> *It's really important for us to get paid. That's part of business. We're not in it for free. We're not here for loss, we need to get paid (L1)*
>
> *We had to be profitable otherwise we'd fall over. We couldn't keep operating. (U1)*

Business owners reported that financial viability was important during the initial years of business, but once the organisation was financially viable, greater focus could be given to financial profitability (M1, L1). The need for financial viability would recur if new businesses units were introduced within the organisation (U1, L1):

> *…how do except lower margins while you build an emerging business? How do you sell that to your shareholders, and how do you sell that to your CFO, who's watching the money? And you have to sell it because you go, "Here are my success. I've got five years to build this emerging business, and these are the key milestones which I need to meet along the way." And meeting each of those is a success, although it might just be not to lose too much money in the first couple of years (both laugh), whilst you roll it out. (L1).*

Financial viability and profitability had to be determined more rigorously than simply having a busy clinic:

> *By the way, being busy is good. Being busy alone and having a clinic that there's people coming through the door and going out the door doesn't absolutely mean that you're making a dollar. (U1)*

Achieving financial viability or profitability depended heavily upon the sale of hearing devices (e.g., hearing aids and cochlear implants), as they were considered essential and more lucrative than providing ancillary services (L1):

> *We do tend to focus on the highest earning clinical pathways. The highest earning clinical pathways in audiology is private hearing aids, but also for us, in implants as well. They are very competitive areas, and they're areas that we really want to make sure that we are delivering value for those client groups in the way we work. (L1)*

Great focus was placed on ensuring hearing device uptake across multiple organisations, since hearing aid sales were essential for financial success:

> *We run through a budget, make sure we have got enough money to pay our staff, to buy our new equipment, to rent our premises, and so therefore, we need a certain amount of income. So, we need to see X number of clients a year, and hopefully a proportion of those go on to buy hearing aids, to a certain value, and hopefully it all balances out in our favour. (N1)*

One senior manager considered it a failure if their clients purchased hearing aids from a competitor:

> *If a person is ready to get hearing aids, I want them to buy them from us. I don't want them to walk away and shop around, and then we ring them six months later, and they bought them from someone else." That, to me is a failure. (N1)*

However, one senior manager argued that reliance on hearing aid sales meant that audiologists struggled to charge clients or value the services they provide to clients:

> *That becomes this trade-off between the client, not necessarily valuing that and saying, "Why do I have to pay for that?" Because of how our industry destroys the clinical viability of an audiologist by throwing away their services*

> *for free. It is influenced by that to some extent, where I think a lot of audiologists are quite poor at valuing themselves and feeling that they can charge for their services. As an organisation we have to be sensitive to where we draw that line. (M1)*

Private paying clients were more profitable than those seen under alternative funding systems (M1, S1, N1), unless the client purchased higher valued devices:

> *I guess the profit margin on our private clients is a little bit more anyway, and I guess the same with (HSP) clients that top up as well, and I imagine that's the same in any business, that the top up does give you a bit more profit. (S1)*

Restrictions under funding systems also limit the financial viability for providing certain rehabilitation services (S2, M1, N1):

> *Obviously from an (HSP) perspective, the issue that we have there is we don't get paid for every visit. You have limited funding under which to get a good outcome before you start to lose money. (M1)*

Although managers occasionally expected things to cancel out over the long term under funding systems (S2, M1, M3)

> *it is a bit of a swings and roundabouts sort of setup, where this person will just sail through and not cost you any angst, and pay their batteries and every year, and do all that and you'll never see them. They will ultimately kind of cover the cost of this person who wants to come in every week, with a problem and do this and do that… (M1)*

Most participants reported a desire to grow their business financially each year (e.g., M1, L1):

> *Obviously from a financial point of view you would expect year-on-year that you continue to grow and that your revenue and your profit continues to improve. (M1)*

Larger and more established businesses were more likely to pursue growth due to requirements of their shareholders or board of directors (L1, L2), believing that investing in growth was a requirement for organisational longevity (L1):

> *This company's been around for a long time. It intends on being around for an even longer time, but you've got to invest in different things along the way, to make that happen. (L1)*

Other senior managers were happy with their current profitability levels if it met the goals of the broader organisation (L1, U3) or the owner (M2, S1):

> *I guess [the accountant's] goal is always to make it as successful and profitable as possible, which may be little bit contrary to mine. I just want to make enough to get by. (S1)*

Not-for-profit and university organisations were expected to return a financial surplus to their parent organisation to support the parent organisation's other endeavours (U1, U4, N1, N2). Both of these organisational types were reliant on subsidies and were vulnerable to changes in funding structures (N1, U1):

> *…how important it's going to be, that we reach a certain level of revenue next financial year. We are losing our government funding over the next few years. So, if we want to keep the number of staff we have got, we have to make more money. (N1)*

Since the primary purpose of university clinics was to provide student placements, conduct research and provide evidence-based clinical practice ahead of meeting client and financial goals, clinics expected the university to support them in times of financial deficit (U1, U2, U3, U4):

> *…it's an understanding where if we make a bit of a loss, the university will sort of compensate us for it. If we make profit, we're handing it over to them so it's a swings and balance. The whole idea is to really try and make sure it's erring on the side of profitability just to demonstrate that we are taking care of this and operating in a fiscally responsible manner. (U1)*

4.3.2.1.3 Double bottom line" success: The interplay of client and financial success

A key finding was that senior managers reported that client success and financial success were indispensable to each other (L1, M1, M2, M3). This concept of achieving both client and financial success was referred to as a "double bottom line":

> *The double bottom line is that we are for profit, we're not for loss, and we're a profit company, so things need to financially stack up, but just as importantly, and it truly is a double bottom line, it has to add value to our clients. It has to add value, whatever we're doing, to our stakeholders. It really is about achieving those outcomes. (L1)*

The double bottom line is essential for the survival of all organisations (L1, N2):

> *Every decision that we make, we're very mindful of: are we achieving positively on both bottom lines? Because you can, particularly in healthcare, you can make a difference to your financial bottom line, but if you're not making a difference to your client values bottom line, you're not going to survive. And the same thing: if you make a difference to your client value*

bottom line, but you're not making a positive difference to your financial bottom line, you're not going to survive. You have to really make sure that what you're doing is adding value to the client, but also financially stacks up... When there's a mismatch between that, that's when you can spiral into problems, and they can be problems either way. It can be that you're not adding value to your clients, then you're actually diminishing your return because you won't get return business or word of mouth, and that creates basically a lack of demand for what you do and all that type of thing. At the same time, if you're not looking at your financial bottom line, and you're just doing things because it does create client value, but it doesn't bring a financial return or benefit to the company, you can't afford to keep doing it. (L1)

Client success should be sought first; financial success is a result (S1, L2, L3):

As a business, obviously there's the financial side of it but that shouldn't be a driver. That's a result. You can't push financial success if you don't have happy clients. (L3)

The business side of things is secondary in a lot of ways, so keeping our clients happy and doing our best job by them, is what we need to do. (S1)

Positive word-of-mouth from achieving client success can lead to financial success (M1, L2):

We do everything, in order to satisfy the customer, with his special need of better hearing. And if this we do right, we can certainly have also this economical success because then they talk about us again, they do advertising for us, they bring in more people. (L2)

This may involve "bending their rules" (M1, S1), but within limits (S1, U1), if it means that that they can obtain good outcomes for clients (M1, S1):

> *By seeing a client for half an hour that you might not get paid for, what you may be achieving there is another person who does not put their hearing aid in the drawer. That is gold from a perspective of continuing to advocate for hearing aid use and rehabilitation. (M1)*

By getting the initial service right and achieving client outcomes can lead to long-term growth (L1) and success (L1, L2, M2) for the organisation:

> *In my mind, in terms of having a business and the longevity of the business, will actually follow and flow if we get that initial service right with the people that we see. (M2)*
>
> *Well at the end of the day, success is growth. If you're not growing, you're shrinking. So from my position, if this company continues to grow, then I am providing what I believe is a great model of service delivery for strong future. Because if I take the opposite, value would be that we would shrink, and value would be that we would be less relevant in the landscape, and that we could help less people. Success from my point of view is that this company continues to grow, and by what we were talking about before and the double bottom line, just that mere sense of growth means that we are delivering client value. (L1)*

from potential repeat purchases due to improved client retention (M2):

> *Clients that are achieving their optimum outcome, therefore they're going to see me as their preferential hearing provider. It adds another link for me to demonstrate to my clients that I have their best interests and their clinical outcomes in mind, it's going to tether them a little bit more to me, and that's a*

> *benefit to me 'cause I'll be the one that they see in five years' time when they need their new device. (M2)*

Ultimately, a person-centred approach is expected to achieve double bottom line success:

> *Patient-centred care… what we feel is that the patient is kept ... is the most important. If there are patients we have work to do; if there no patients we have no work to do. So to keep our business viable the patient-centred care approach has to be taken. (M3)*
>
> *If you look after people and treat people with respect and do the best you can for them, then the other stuff just happens. It's okay to make money and a business needs to make money so that I can service people and still be here, but if I do it in the most respectful way without having to undermine anybody or overcharge people or sell people things, then everybody wins. (M2)*

But a person-centred approach to client care was lost if financial success was pursued ahead of client success:

> *We know that the patient-centred care approach is lost. The moment we start talking about just purely sales and numbers… that would be the worst case scenario. That means that your sales can go up but your patient-centred approach is lost. So, that is not the real target here. The idea is to achieve a happy client outcome rather than a number of units or a number of products that we have sold in that month. (M3)*

4.3.2.2 Broader themes

4.3.2.2.1 Ethos, Mission or Vision

The ethos, mission and vision determined the organisational type and therefore impacted how success was conceptualised. The ethos, mission or vision for each organisation were typically determined during the formation of the organisation (G1, M2) but was reviewed periodically by senior managers in some organisations (L1, G1). For example, participant government and not-for-profit organisations were created to serve the " most vulnerable" or the local Deaf communities (G1, N1, N2); owner-operators of independently-owned organisations may have pursued an opportunity to provide more ethical practice than their competitors (M1, M2, S1); and university clinics primarily exist to provide student placements and research opportunities (U1, U2, U3). Not all senior managers distinguished between their ethos, mission and vision or formally described these aspects; however, most shared similarities with their competitors.

Each organisation had a motto or ethos containing beliefs about the purpose of the organisation and how they would achieve their goals. The ethos was essential:

> *Because if you don't have that why, you never really know why you exist. You don't know what you're doing. (L1)*

Many senior managers described their organisational ethos as centred around caring (G1), helping people to hear (G1, N1, S2), putting the client first (L3), or enriching people's lives (L1, S2).

Implicit within the ethos for several organisations was a commitment to a set of ethical principles for the duration of employment (L2, S1):

> *We remind our people every year (of) these ethical codes. We would be very strict if somebody would (fail). We would certainly let (them) go immediately (L2)*

One senior manager described ethical practice as:

> *based on providing a genuine service to people that is not looking at trying to mislead them or trying to coerce them. I think it just stems from working with integrity and honesty and trying to instil that in my staff, that being successful and profitable does not need to be mutually exclusive with being ethical and acting with integrity. (M1)*

Ethical practice was expected from all staff including the senior manager:

> *(Ethical practice is) lived here from my position, from <most senior manager> down. I cannot say, "You have to be ethical," and I can do whatever like I want. No, certainly not. You have to be an example to everybody, that they understand this. (L2)*

Ethical practice mandated a long-term view to clients' hearing rehabilitation (M1, L2), which would in turn achieve both client and financial success:

> *…it all stems from a philosophy of doing the right thing by the client, taking the long-term view and having a belief that doing the right thing by the client will pay off in the long run, rather than trying to get a quick sale out of them. (M1)*
>
> *Companies who cheat their customers, you can do it once, maybe twice, but in the mid or long-term days, there is no way out of it, yeah? (L2)*

However, acceptable ethical behaviours varied across organisations. For example, while some valued device affordability for their clients (M3), most senior managers were comfortable with their clinicians recommending high-end hearing devices (N1, N2, L2). Overall, senior managers did not want clients being pressured into hearing device purchases (M3) but felt that clients should be free to purchase whichever hearing aids they required (M2, N2, L2) provided they did not have to obtain a financial loan (M2):

> *I would strongly encourage any of my clinicians to offer high-end hearing aids to anybody, because I do personally think they're better. But, if your goal is to watch television and sit by yourself all day, it's certainly not necessary. It would never drive me to sell or not to sell, the person in front of me is what drives my discussion. I would like to trust my colleagues to do the same. (N2)*

Another area where ethical behaviours varied was clinician autonomy for fitting hearing aids. Vertically integrated organisations had a preference to supply their brand of hearing aids (L2), while other organisations would rely on their team (N3) or individual clinicians to determine which hearing aid brands to offer (M3). Several organisations did not require their clinicians to fit a particular brand of hearing aid (M1, M3, S1):

> *In a lot of roles we will see that the clinician is supposed to sell this stock of hearing aid or this particular device which is not our goal; our goal is achieve the bigger picture rather than looking at the micro picture of each and every hearing instruments and stuff. (M3)*

Some managers wanted that clients to be free from undue pressure from their clinicians regarding purchase decisions (M2, M3). To enable this, several organisations did not pay commissions on hearing aid sales to their clinicians out of ethical principle (M1, N2, N3, S1):

> *People pay commissions, bonuses, to audiologists to sell a particular product or level of technology. So, that, I guess, compromises what the clinician is doing, it's not necessarily based on what the client needs or wants. (N2)*
> *I don't agree that commission-based earning is fair. I've worked in that before and it can be stressful and I feel like it does impact your clinical decisions. I've discussed it with my staff and they agree. (S1)*

Closely tied to the organisation's ethos is its mission, which is how the ethos is brought to life. The mission for several organisations (G1, L1, L2, L3) centred around:

> *Making a positive difference in people's lives, that's our mission, and that's what we get out of bed for. If we're not making a positive difference in people's lives, we need to evaluate what we're doing wrong (L3)*

For others, it was important to support their clients and create a good client experience (U4), or to consistently (M2) provide high quality services (M3) at an affordable price (M3). Some organisations valued evidence-based clinical practice (G1, N2, U1, L2), while others embraced a spirit of innovation (L2, L3). Several senior managers embedded person-centredness into their ethos and mission (M2, S1, U2, U4):

> *I think patient-centred care is important and I guess that's part of our ethos, so we'd like to think that we do have that embedded. (U4)*

Finally, the organisational vision describes: *why am I here, and where are we going? (L1).* The vision is lofty:

> *Understanding that we probably may never reach it, but it's always going to be something that we aspire to do. (L1)*

The ethos, mission and vision provided a point-of-difference for each organisation. Most senior managers believed that they provided a better service and client experience compared to their competitors (S1, N1, M2):

> *I have a very strong view that the way I do business is extremely different to a vast majority of the industry. I have a very strong view that our patient centred care is at the high-end and that the vast majority, not necessarily private practise but certainly the other major places, are at a very low end... (M2)*

Ethical practice was described by many senior managers as their key point of difference to attract clients (N1, N3) and clinicians to work for them (M1). Ethical practice was valued in some organisations even if it meant providing more expensive services than competitors (N3) or operating with increased costs (U1):

> *That's our point of difference here, is making sure we're more client focused and performing ethically in that manner. (N3)*
>
> *It's a point of pride that we don't, and we push it a little bit on our website, saying, no commissions paid, because it's a point of difference. (N1)*
>
> *I think that a lot of people that end up working here, come here because they've come from roles that they have felt pressured and they have felt that their own ethical behaviour might be compromised. I think that, in some instances it's not hard to bring people on board in that way, because they are looking for that. That's why they come here. (M1)*

4.3.2.2.2 Manager's role within the organisation

The manager's role affected how they considered success. Senior managers typically held roles that involved legal compliance (L1), hiring (L2), training (M2, L3, G1), leading the management team (L1, N2) or leading other staff (S1, M2).

Senior managers from larger organisations had access to middle managers with responsibilities for clinical practice (L1, L2, L3, N2, M2), financial functions (U1, L1), information technology (L1, M1) or research (N2, G1), but had less autonomy to determine their criteria for success. These managers had to meet goals determined by their board of directors (L1, L2, N1, N2) or the university (U1, U2, U3, U4). For example, some managers were required to pursue organisational improvement and growth (L1):

> *My role in this organisation is essentially strategy, so thinking about how do we, in terms of our current business, how do we do that better? How do we optimise what we're doing in our current business? But also, the second part of what I do is looking for future business. (L1)*

On the contrary, senior managers from smaller organisations were freer to determine their own criteria for success:

> *Because I guess it's met my goal and I'm happy with the amount of profit the business makes, I'm happy with the way that we help people and the feedback we get is I think 99% very positive, which is nice. It seems to be more positive than anywhere else I've ever worked in a similar role. I don't know if that's because I'm the person that's there all the time, that they don't own the business, but it's nice to feel like this is the best job I've ever had in the field. I guess another goal for me was to have a good work life balance, which I certainly do. (S1)*
>
> *This business is quite a boutique hearing centre for me and it will stay that way. I like being boutique. I like offering very personal service. I don't want to be a larger company. I have the capacity to do it, but I don't want to do it. (M2)*

The varied backgrounds of senior managers also affected how they perceived success. Managers with clinical qualifications differed in how they lead their clinicians, either by example if they were still actively practicing (S1, S2) or by entrusting it to clinical managers (M1, L1). Managers with formal business qualifications (N2, L1, L2, U1) were more comfortable with discussing financial aspects of success. One manager sought to develop the business skills of their clinicians:

> *I do understand when you are managing health professionals, they are strongly aligned to client value, which is great. What a great problem to have. But the same time, had to balance that with saying, "Yeah, but if you're not financially viable, you can't help anyone because you won't survive," so you have to learn to balance it. When I started with the company, the majority of the management team, all but one member was an audiologist, who didn't really have any business understanding. So to appeal to them I said, "... Just because I talk about the financial aspects, doesn't mean that I'm discounting the client value. It just means they have to be the same." It just started to give them a bit of a framework about how to make their decisions, and since then, we now have half of our team are audiologists and half of our team are non-audiologists. The ones who are audiologists are developing their business skills, both formally and informally. (L1)*

4.3.2.2.3 Staff factors

All staff members are required for organisational success (G1, L1, M3) and are important to for the longevity of the business (L1). Clinical and administrative staff represent the organisation to hearing rehabilitation clients and operate in a symbiotic relationship to achieve client and financial success (M3):

> *The audiologist, the clinician, all our staff are really important as well: so the clients and the staff both have a focus in success. (G1)*
>
> *The journey starts with the front of the house and it ends at the front of the house. So it is very important that the front of the house ... they're very, very passionate about what they're doing and how they're developing their rapport with the clients. And this is very important. That is why we try to put the best at the front of the house. And also the back of the house, because at the same time, you need them both. (M3)*

Several managers set out to create workplaces for the benefit of their staff (M1, M2), and are responsible for "instilling a sense of spirit and pride throughout the organisation" (G1):

> *To think that I'm providing a positive, healthy workplace for people, is one of my biggest motivators for doing this (M1)*
>
> *It's having a stable business that will be around for a long time so my staff have continuity of employment and feel comfortable here. (M2)*

This included the senior manager's own happiness and goals in smaller organisations:

> *Just having a happy workplace, staff being happy to come to work… all staff: I've got to be happy as well. (S2)*
>
> *If I didn't have a good work life balance, I probably wouldn't do the job. (S1)*

A consequence of being a happy workplace (S2) is that the organisation would be seen as an employer of choice (M1, N2, L3), which would ensure high quality applicants (N2):

> *Clinicians wanting to come work for us: because that's success as a business within the industry is seen when you've got people who want to come and be on your team. (L3)*

The type of workplace could affect staff retention (L1, G1). Staff would stay if they:

> *Believe in what we're doing, and they see a career future with you as a professional. (L1)*

Poor staff retention was expensive for the organisation, and it was important to consider why staff left (M1, L1);

> *Well most of our audiologists come from university or the big graduate intake programme. You put a lot of time and energy into developing them, you want them to then go on to potentially one day sitting in my seat. You need to build that, and you do worry if you get a lot leaving in that three to four year mark. That tells you they're not engaged, that they're looking for something more. (L1)*

It was a delicate balance of pressuring staff for performance:

> *I put lot of pressure on them. Yes of course we have a certain pressure, we have commitments to the investors, we have commitments to the top management, in this respect we are like another company otherwise we wouldn't be that successful. However, people should enjoy being here… If there is pressure all the time, people can stand maybe a couple of years, but then they will leave. (L2)*

Senior managers wanted their staff to feel valued (L3), happy (S2, M1, L2, U1), cared for (N3) and motivated (L2) to work at their best:

> *I believe in it that when people enjoy it here, they are highly motivated and then they are at their best ... at their best level of working. (L2)*
>
> *It's critical that they're feeling happy in their position and that no one is being put upon to do more than others in a similar position. (U1)*

One way that senior managers showed that they valued staff was by trusting the clinical ability of their individual clinicians (U2, U3, U4, M3), and did not expect clinicians to be "clones of each other" (U3):

> *I think I'm trusting all the clinicians to use their clinical decision-making skills. I'm not didactic or draconian in what I say. I think I respect everybody's clinical ability, and fortunately, we've got a clinic here where everybody is good at making clinical decisions, and nobody displays any hesitation in what I perceive the right thing to be. I think we will all do things for the same reason, so we'll all do what we feel is most appropriate at that point in time. (U3)*

Several senior managers also provided their staff with autonomy to vary service schedules as needed, trusting in their staff's professional judgement and discretion to waive clinical fees or to book more or longer appointments within pre-determined boundaries (S1, L1, M2):

> *they need to have a certain amount of autonomy in what they do, so they know that if they have a particularly difficult client or a high needs client, that they can book a double appointment with them: If they need two hours instead of one that's fine, whatever they need. Look I keep an eye on it to make sure not every appointment is two hours long, but I think these are reasonable people that I work with, they're well educated, they've been to the conferences, they*

> *know about patient centred care and they know the principles behind it. Being flexible in what they can and can't do helps them in that regard I think. (S1)*
>
> *The audiologists have the discretion to discount. They have the discretion to not charge. (L1)*

Autonomy varied across organisations, and could include the clinician's discretion to not to fit particular clients (M1) or the clinician's freedom to fit the hearing aid brand most appropriate for each client without managerial repercussions (S1, M1, M3, N2, N3):

> *They are under no pressure to sell any particular product or any particular brand of product, so they have the freedom to choose what they want to choose as long as they achieve the bigger picture. (M3)*
>
> *I think that giving the audiologists the scope to fit what they feel is clinically appropriate to the client or not fit them at all (M1)*

Staff may also be shown how they are valued with non-financial rewards such as vouchers, meals or holidays (L3, M3, N2), by receiving recognition throughout the organisation through cards, flowers or awards (L1, N2, N3, M3, S2). In larger organisations, staff may also receive further opportunities to advance within the organisation (L1, L3, G1), pursue further professional or educational development opportunities (L1, N2, N3, L3), or be invited to participate in representative panels (G1, L3). Managers in smaller organisations connected with the staff more regularly to show they were valued (M1, M2, S1, S2):

> *I just make a point of actually speaking to every staff member every day. (M2)*

Although remuneration was seen as a crucial instrument for demonstrating the value of staff, several organisations did not provide commissions for the sale of hearing devices for ethical reasons (M1, S1, N2, N3, U2), since it could be stressful for clinicians and impact

their clinical decisions (S1). However, additional renumeration was provided to those with middle or junior management responsibilities (M1). One manager believed that:

> *A salary increase is a privilege not a right, and that's one of the challenging things to convey to people… Again, I have a real beef with the salary expectations of audiologists versus what the public expects to pay for our services. (M1)*

And that their staff chose to work for some organisations for non-financial reasons:

> *I think for a start, I know for a fact that people could jump ship and go to somewhere where they could get paid more. I think part of that is because they want to have work in an environment where there is more focus on the client and being honest with the client. (M1)*

Several organisations were committed to developing their staff members (L3, M1, M3, N2, N3, S1):

> *We really look to develop our clinicians. And I think in previous jobs those that were doing well got left behind, because they were just doing well, and they got forgotten and we would be focused on the low end. So we really try and make sure every clinician has development goals. (L3)*

One participant believed that a person-centred approach would lead to clinician professional satisfaction, growth and development:

> *For the growth and development of our organisation, patient-centred care is the best approach and will give our clinicians a lot more comfort and satisfaction… The clinicians derive professional satisfaction in the profession*

> *that they work in if the patient-centred approach is being met by the clinic. (M3)*

Several organisations provided paid learning and development opportunities for their staff (M1, N2, N3, S1), with some organisations requiring staff to share their learnings with the team (N2, S1).

Staff could raise any serious issues they had at work by reporting directly to their senior managers in all organisations. Managers would take their concerns seriously (M1). Most senior managers reported having an "open-door policy" and encouraged their employees to speak to them, preferring to resolve any ongoing issues rather than wait for annual performance reviews (L2, L3, M1, N3):

> *And ideally, we don't like to see these annual performance reviews as the only time that clinicians will bring up any issues or barriers with us, we'd like to have ongoing communication during the year. So, we do tell our staff that when we it comes to do these performance reviews, we don't see it as a time to air out all your grievances at once. I mean, if you do have an issue or problem, you need to let someone know straight away rather than letting it build up to the performance review time to bring out these issues. (L3)*

Overall, senior managers reported that keeping all staff happy and engaged was one of the most difficult areas to achieve success in (M1, N1, L1):

> *I'll be frank with you and tell you that staff are the biggest challenge of running a business. And because apparently, I'm supposed to be able to read everyone's minds and know exactly what everyone is thinking, feeling, hating, liking - and that's the biggest challenge. (M1)*

> *I don't ever think that you're going to get 100% of people aligned all the time. (L1)*

In return for providing a happy workplace that values its staff, senior managers had several expectations on their staff. Several managers had strong views on the necessary skills, capabilities and ethical practice of their clinicians. Technical skills are needed: "to tune the product, to fit the product in the right way" (L2). Clinicians are expected to be well educated, hold professional qualifications and engage in continuing professional development (N2). Clinicians have to be capable of managing complex interactions within hearing aid settings and yet be able to explain it to various clients (L2, U1, M1):

> *This is a beauty; I mean, I really cannot think of another job, and I'm very serious, where you bring this expertise of IT or computer expertise together with social capabilities. (L2)*

Communication skills are essential. Clinicians must provide information, choice, win clients' trust and engage them on a level that they're happy with (N1, U1):

> *I think if someone's prepared to come along to see a professional, an expert in a particular field, they're already going to accept whatever your advice is and it's rather than the cleverness or the thing that wins patient trust is that you engage them in a way on a level that they're happy to engage in so they feel fully informed and they feel comfortable making an informed decision. (U1)*

Senior managers valued the professionalism of their staff more than their ability to sell hearing devices (S1, M1), such as being a team player (M1, M2), reliable (M1), and organised (M1). Clinicians were expected to have good administrative skills, such as documenting their notes well (M1, M3) and producing timely reports (N2). Ethical practice in line with the organisation's ethos was required (M1, L1, N2). Senior managers expected their

staff to put the client first (N1). Furthermore, staff should be committed (G1), confident (M3), passionate (G1), engaged (G1, L1), take the initiative (M1), take responsibility for themselves (M1), but above all be aligned to the organisation (L1, M2):

> *The most important things to me is, I would say, professional and ethical behaviour of staff. (N2)*
>
> *I think we look at other aspects of being in terms of being team players, reliability, turning up on time, documentation, all the things that go towards being a good audiologist that aren't translated into how many units you sold last week. (M1)*

The professionalism of staff could affect their remuneration:

> *If someone has gone above and beyond their role, then we're going to look at giving them a higher pay rise than the person who has just literally turned up and done their job and not demonstrated any initiative or be a team player or anything like that. (M1)*

It was increasingly difficult to maintain organisation's ethos, brand and reputation (M1, N2) with each additional staff member (M1, U4, S2):

> *I'm very keen that our clinic maintains the ethos, and I guess that's more difficult to do because it's not just me anymore. (U4)*

Clinicians who failed to adhere to the organisation's ethical principles (L1, S1) or deliver client success were not tolerated in many organisations (L1, M1, U2). Some senior managers tried to hire staff that were aligned ethically with the organisation (M1), while others felt that it was difficult to advertise, interview and hire based on ethical alignment:

> *I don't think we specifically hire based on that attribute; I don't know if that's something you can advertise for. I think you can get an idea about what somebody's ethical fibre is made of… you can get an idea about their clinical philosophy just by discussions you've had with them. It's not something that we've put into interview questions, but I think you can just tell from the type of person that they are. (U3)*

Ultimately, if discussions revealed that a clinician refused to align with the organisation's ethos (U2), they were either given fewer opportunities to practice (U2) or were managed out quickly to protect the organisation and other staff members (L1, M1, U2):

> *I'm personally a very big believer in moving to formal counselling, and if needed, termination, more quickly than slowly. The reason I believe that is if you don't deal with poor performance in a team, from a member, it sends a message to the rest of the team that this poor performance is acceptable to the company. Therefore, it lowers the bar for everyone. You have to send a message quick, and be consistent: "No, this isn't good enough." (L1)*

4.3.3 How senior managers of hearing rehabilitation organisations evaluate success

Core and broader themes identified from how senior managers defined success informed the template analysis of how senior managers of hearing rehabilitation organisations evaluate success. A summary table can be found in appendix 8.4.

4.3.3.1 Core Themes

4.3.3.1.1 Client success

Participant senior managers evaluated various aspects of client success using formal and informal methods. Senior managers chose formal tools based on their knowledge and experience (S2, G1) or if they were required under certain funding systems (e.g., HSP).

Formal evaluation of client success was delegated to heads of clinical practice in larger organisations (L2). Senior managers preferred tools that suited the Australian context (M3), contributed useful information that could not be collected elsewhere (S2), had benefits that outweighed its administrative and analysis costs (S2), and allowed them to benchmark organisational performance internally or against survey norms (M2, S2, G1). External benchmarking was typically unavailable to smaller organisations for all methods of evaluation (M1, S2). Some senior managers relied more on informal feedback due to time constraints (M1, M2) or because they believed that their clinical processes and staff were effective in achieving client success and therefore did not require evaluation (U2, U3).

Client goals and needs were typically identified through interviews during initial assessment appointments. Most organisations use the Client Oriented Scale of Improvement (COSI) (Dillon, Birtles & Lovegrove, 1999) to identify client goals for their hearing rehabilitation. Clinicians would assess and record the extent to which identified goals were met following rehabilitation. The COSI was mandatory under the Hearing Services Program (HSP). One senior manager used the Personal Assessment of Communication Abilities (PACA) (Taylor, Manchaiah & Clutterbuck, 2016) for clients to self-report their hearing difficulties prior to rehabilitation (N1). One senior manager used tools developed by the Ida Institute (M3), while another had used similar pre-rehabilitation tools but found that the client intake interview provided the same information more efficiently (S2). One senior manager reported using a hearing aid decision aid for clients to choose their preferred hearing rehabilitation option (M3). Family members of clients with severe cognitive impairment or with complex needs were sometimes invited to complete the Parents' Evaluation of Aural/oral performance of Children (PEACH) questionnaire (Ching & Hill, 2007) to assess the client's communication abilities (G1).

Clinical notes were sometimes randomly audited internally by the organisation or by external auditors under the funding requirements of HSP or the State Government (N1, N3, L1). Audits assessed if client goals were met (M2), if family members attended (N3), if processes were adhered to (N1) or if clients were given choice (N1). Clients may be occasionally interviewed by external auditors or the organisation as part of the audit process. Clinical notes were limited by the administrative capabilities of audiologists (M1) or clinician recall (N3).

Client and their family member experience of care was typically assessed by way of informal questions from clinicians and reception staff. Clients and their family members may also choose to provide feedback using cards placed near the reception area or to write to the mangers of each organisation (L2). One organisation attempted to record client feedback digitally at reception but withdrew this method for logistical reasons (U2). One senior manager required their administrative staff to record questions raised by clients as a feedback instrument indicating how to improve services (N2); if several clients requested a particular service, then there was likely demand for the organisation to provide the service. Formal assessment of the client experience relied on surveys exploring client satisfaction with the clinician or services, or how likely the client would recommend the organisation to friends and family. Two organisations invited selected hearing rehabilitation clients to participate in focus groups to contribute their views in order to improve services (G1, L1) or evaluate if clinical processes were meeting client needs (G1).

Word-of-mouth was seen as an overarching indicator that client success was achieved. Some organisations calculated the Net Promoter Score (NPS) (Reichheld, 2003) from how likely the client would recommend the organisation to friends and family (L3). Clients who provided low NPS scores would be contacted by the organisation to resolve any grievances, and to mitigate potential negative word-of-mouth. Besides the NPS, organisations tracked the

referral source of new clients. Metrics pertaining to the referral sources of new clients can then be calculated to identify trends and key referrers. This was vital for medical referrals: one senior manager believed that two negative client experiences reported to a medical practitioner would prevent further referrals (L1).

Most formal evaluations of client success were focused around hearing devices. Most organisations surveyed clients who adopted hearing aids two to twelve weeks following fitting to explore hearing device satisfaction, usage, benefits and ongoing difficulties. Senior managers reported using the International Outcome Inventory for Hearing Aids (IOI-HA) (Cox *et al.*, 2000) and the Hearing Aid User's Questionnaire (HAUQ) (Dillon, Birtles & Lovegrove, 1999) since both questionnaires had norms available for Australian clients. Organisations followed up any reported difficulties with the client (M1, M2). One organisation used the EARtrak questionnaire, which administers similar questions to the HAUQ, to benchmark their performance against other Australian organisations who use the EARtrak (N1). The EARtrak was considered too expensive for other organisations (U4, S1). One senior manager reported questionnaire return rates of around 20% (L1). Hearing aid non-adopters were rarely surveyed apart from clients who trialled and returned hearing devices. The experience of clients who did not adopt hearing aids were rarely sought beyond informal methods.

Long-term client success was assessed by client retention. Client retention was assessed by monitoring the number of clients who return for annual visits. Organisations who provided services under HSP received notifications for clients transferring to other providers. Conversely, clients transferring from competitors was perceived to indicate the organisation's superior services (L2, M2). Similarly, having a full clinical diary was perceived by some senior managers to indicate client success by the organisation (U2, U3).

Organisations with other types of clients assessed their clients using various methods. For universities, student satisfaction was derived through student surveys or direct feedback to the clinical managers (U2). As mentioned, medical practitioners satisfaction with the organisation was assessed by tracking the number of referrals (L1), while organisations who received state or federal funding for hearing services may be asked to report on the interactions with clients for which they are specially funded to service (G1, N1).

4.3.3.1.2 Financial success

Financial success was ultimately evaluated by achieving the organisation's intended profit or surplus. Profit (known as "surplus" in not-for-profit organisations) is the positive difference between total revenue received and total expenses incurred. To maximise profitability, organisations would strive to increase their revenues while lowering or maintaining their costs. Profitability was primarily assessed by gross profit figures (U1), which is the total revenue received less the cost of goods sold (i.e., the cost of hearing devices).

Organisations determined their desired level of profitability in line with their ethos, mission and vision. In smaller organisations, profitability levels were usually decided by the owner and/or their accountant (M1, M2, S1, S2). In larger organisations, the financial budget was determined annually or biennially from the senior management team's strategic plan or by consultation with the Chief Financial Officer (or their equivalent) (L1, N1, N2).

The greatest source of revenue was the sale of hearing aids and cochlear implants (L1) and therefore the sale of hearing devices was a dominant priority for all hearing rehabilitation organisations. Several organisations tracked hearing device output metrics such as the number of devices sold, the average selling price to the client, top-up rates (the number of HSP clients who choose to purchase higher valued hearing aids), hearing device uptake or conversion rates (the number of attending clients who proceed to obtain a hearing aid), and

hearing aid return rates. Higher values across these metrics (with the exception of hearing aid return rates) indicated greater revenue for the organisation.

The number of attending clients were also seen as a predictor of revenue. The number of new clients predicted future revenue since a proportion of new clients was expected to purchase hearing devices (N1, M2). High numbers of returning clients suggested that clients were happy with their device and services and were likely to offer positive word-of-mouth to others (M2) and may choose to purchase replacement devices with the organisation in the future (L2). For these reasons, some senior managers adjudged having full clinical diaries (and being booked out for subsequent weeks) as an indicator of financial success (U2, U3). However, other senior managers believed that although having full clinical diaries may generate revenue, it did not necessarily lead to profitability (U1).

Some organisations assessed how much revenue each clinician or administration staff generated, either from hearing device sales or services provided, to predict and assess profitability (M2, M3). Some senior managers had targeted levels of revenue per clinician but did not share their targets with their clinicians to allow them to focus on client outcomes (M2).

From an expense perspective, some senior managers evaluated if they fully utilised their resources, such as their clinicians, equipment or clinical space (L1, M1, U2). Unfilled clinical appointments represented unmitigated ongoing expenses such as staff wages and other operational costs (such as lease and equipment). Some organisations ensured that their clinical diaries were full to ensure full utilisation of resources (U2, U3), while others actively tracked and sought to reduce the number of clients who did not show up to appointments (N2).

Organisations who used an unbundled pricing approach[8] could more easily distinguish revenue and cost figures for devices separately from their services when evaluating financial success (M1, N2), allowing them to reduce their dependence on hearing device sales (N2) compared to organisations who used bundled pricing (N1).

Financial viability in the early days of the organisation (M1, S2) was determined by profitability and cash flow (M1, S2). When established business introduce new services (such as tinnitus rehabilitation services), they first commit to offering the new service in the face of early financial losses for a pre-determined period (M1, U2, L1), before ensuring that target profitability levels are met (L1).

Growth in the organisation was assessed through a combination of increasing client numbers, revenue and profitability year-by-year (L1, M1). Senior managers reported that it was important to respond to trend data rather than absolute data values when assessing financial figures (L1, L2, L3, S2). "*The trend is your friend*" (L1), noted one manager, and they encouraged their middle managers to think similarly. Based on trend data, senior managers who had experience working for larger organisations expected their staff to generate similar financial figures over time (M2, L1, L3).

One common challenge reported by senior managers of small to medium sized organisations was that it was difficult to benchmark their financial performance against similar sized organisations (M1, M2, S2). Financial data of unlisted hearing rehabilitation companies are not easily available in Australia. Hence, smaller organisations may benchmark internally against their previous performance to determine desired levels of financial success and growth (M1, M2, S1, S2).

8 An organisation may also choose one of two types of pricing approaches (Sjobald & Warren, 2011). Organisations who used a bundled approach offered private paying clients a single package for hearing devices and services, while organisations who used an unbundled approach itemised hearing device and service costs separately.

Finally, there was a key difference in how senior managers evaluated financial success. Some senior managers would regularly monitor their financial figures themselves or via their accountant to ensure their goals were met and to immediately rectify any identified issues. Larger organisations generally had several key performance indicators (KPIs) across revenue, cost and profitability measures to ensure that financial goals were being met (L1, L2, L3, G1, N1, N2, N3). Examples of financial KPIs could include having a targeted hearing device uptake rate, to increase the quantity of hearing assessments, or to have a low percentage of aged debtors. Consistent with the double bottom line concept, most senior managers used client success KPIs to drive financial success. For example, a high percentage of clients must be satisfied with the hearing devices when surveyed, or surveyed clients must provide a high NPS score. Senior managers of smaller organisations and university clinics were less reliant on formal KPIs to assess financial performance (M1). Some senior managers argued that financial KPIs were unnecessary since the organisation prioritised client success (U3, S1), which would in turn deliver financial success (L3). Others felt that their choice of KPIs were "*very output-focused and not very outcome-focused*" (N2). Not all senior managers had formal financial qualifications (e.g., U3, S1, M1) and one senior manager reported that they made financial decisions based on "gut instinct" (M1). Nevertheless, senior managers who used KPIs emphasised the need to consider trend data (L1, L3) and to be careful not to use too many KPIs to prevent "analysis paralysis" (L3) – where excessive information and analysis impair decision making.

4.3.3.1.3 "Double bottom line" success

The methods described above for evaluating client success and financial success were used collectively to determine double bottom line success.

4.3.3.2 Broader Themes

4.3.3.2.1 Ethos, Mission and Vision

The organisation's ethos, mission and vision were typically established at the creation of each organisation. Large organisations reviewed their organisation's ethos, mission and vision as a senior management team (which may include the board of directors) periodically to influence planning processes. Changes to the mission could impact short and medium-term organisational goals pertaining to client and financial success (G1, L2, N1, N2). Senior managers of small to medium organisations tended to be owners who worked in the business. Given the smaller management team in these organisations, senior managers self-determined their staff alignment to the organisation's ethos, mission and vision (M1, S1, S2).

Three senior managers evaluated staff knowledge of the organisation's ethos, mission and vision more formally by using surveys. One of these organisations used the Voice Climate Survey (VCS) (Langford, 2009) annually to assist them in determining staff alignment to the organisation's vision (N2). Staff responses to surveys were typically anonymous and there were no negative consequences associated with staff responses; instead, senior managers used staff responses to improve identified areas of concern.

Most organisations ensured their staff were a good fit to the organisation's ethos, mission and vision at the time of employment. Senior managers tried to hire staff who aligned with their ethos (M1). The interview was seen as an opportunity to assess the applicant's ethical "fibre" (U3) and potential alignment with the organisation. Potential staff had to agree to ethical codes of conduct to be employed with the organisation (S1, L2), and breaches of ethics were taken seriously. One senior manager required their staff to renew their commitment to the organisation's ethical code annually (L2). Staff were expected to voice any concerns with the organisation's ethos, mission and vision to their senior managers

informally or at annual performance reviews. Staff who had poor clinical performance owing to misalignment with the organisation's ethos were managed out (L1, M1).

4.3.3.2.2 Manager's role within the organisation

Each senior manager had different evaluation requirements pertaining to their role. Senior managers of small to medium organisations were typically owner-operators and could self-determine the success of their roles. Although financial performance was evaluated by their accountants, client and financial success for the organisation were closely linked to the owners' personal goals (S1, S2, M1, M2, M3). Senior managers who were employed were evaluated in their role according to their organisational type. Senior managers of not-for-profit organisations were expected to set and meet financial budgets to provide enough surplus for their parent organisation (N1, N2, N3). Senior managers of organisations that received special federal or state government funding had to meet additional goals stipulated as a condition of funding (N1, N2, G1). Senior managers of university clinics were evaluated on meeting student placement, student experience and university research goals ahead of providing financial surplus to the university (U1, U2, U3, U4). Senior managers of large organisations were expected to meet the goals that they had set and promised to their board of directors (L1, L2). While most financial performance was evaluated by the organisation's Chief Financial Officers, senior managers of listed companies also had to meet targets for the organisation's share price.

4.3.3.2.3 Staff factors

Staff were evaluated on their clinical performance; their professionalism and ethical behaviour; alignment with the organisation's ethos, mission and vision; their learning and development; and their feelings towards the organisation.

Clinical performance was assessed by meeting organisation-determined client and financial goals (N2, N3, L1, L2, L3, G1). Consistent with the double bottom line concept,

client success was prioritised ahead of financial success in staff evaluation, and senior managers would try to ascertain the cause of any poor performance to determine next steps:

> *I would take poor satisfaction scores very seriously. I think that would be something that would be actioned on a personal level, so it would be a matter of sitting down with the individual and really getting to the bottom of what's happening. If there really was an attitudinal issue, it would potentially become a performance management situation, depending on what was causing those scores. Whereas, poor financial results would be a matter of rallying the troops in a way to say, "Okay do you need more marketing, do you need more training, do you need ... what can we do to get you out of this rut that you're in?" I think yeah, I think it's, I think they have different outcomes depending on which issue is the greater. (L3)*

Clinical performance was evaluated through a variety of methods. Several senior managers evaluated clinical performance during annual reviews (G1, L3, M1), while others were uncomfortable evaluating clinical performance in a formal one-to-one setting (M2, U3). Clinical performance could also be assessed during internal or external audits (L1, N1). One senior manager chose to observe one appointment for each clinician annually (N1). While senior managers of large organisations relied heavily on KPIs, others did not feel that they needed to evaluate staff clinical performance (U2, U3), reportedly due to trust in the quality of their staff or the efficacy of their organisation's clinical processes (M1).

Staff professionalism (e.g., punctuality, taking responsibility) was largely assessed based on feedback provided by clients or other staff members (M2, M3, L2, U2). Senior managers of small to medium organisations had the benefit of being able to casually observe their staff interactions in day-to-day setting (S1, S2, M1, M2, M3). The ethical behaviour of

staff, and their alignment with the organisation's ethos, mission and vision was discussed above under the sub-heading "*Ethos, Mission and Vision*".

Staff were expected to learn and develop their skills in several organisations (N2, N3, S1, M1, G1). Staff goals regarding their learning and development were obtained during informal conversations or at annual reviews. Staff who met clinical performance goals were rewarded with further opportunities to develop their skills (G1, L3). For most organisations, however, staff who performed poorly against organisational goals were also given additional support and training to improve their skills (L3, M2, N1). In one organisation, staff who attended external professional development courses were expected to present their learnings to their colleagues (N2). Advancement in pay would occur in one organisation only if learning and development goals were met (N2).

Three senior managers used surveys to evaluate staff feelings towards the organisation, with one senior manager using the Voice Climate Survey (N2). Most senior managers used informal conversations to assess the feelings of their staff towards the organisation. One manager reported calling their staff daily to check-in with them (M2), while others would host staff drinks to allow their staff members to discuss their successes and challenges in an informal atmosphere (U1, M2). Senior managers of smaller organisations evaluated the general happiness of the overall workplace informally via the "office vibe" (M1). Staff who socialised in the workplace and outside the workplace suggested a cohesive team (M1).

Most senior managers hoped that staff members would take advantage of their "open door" policies (L2, L3, N3) and voice grievances as they arose, rather than addressing concerns only at their annual review (N3). Senior managers reported that they would take all staff concerns seriously (M1). Staff-reported grievances were used in some organisations to

identify any factitious relationships between administrative and clinical staff (M3, U1) and to resolve arising differences.

4.3.4 How senior managers of hearing rehabilitation organisations define person-centred care

For this research question, senior managers were asked to define person-centred care. As a group, senior managers defined several components of person-centred care by several aspects. Senior managers discussed involving the client and their family members in hearing rehabilitation appointments, by being guided by the client but not directed by them (G1, U1, U3, L3, S2): *Client-centred means the client directs their own service, it doesn't mean that we say "this is what we do" but "you tell us what works for you" (N1)*; and by working with the client and their family (G1, S1, N1): *we try to involve them and their families, where we can (N1).*

The needs of individual clients need to be addressed (M1, M3, N1, N2, N3, L2): *Any interventions or services are, again, based around what they need, what they want, around their goals, around addressing some of the communication deficits that they are having (L2)*; as well as the needs of their family members: *We might talk and try and help them on their pathway to change if that's what the whole family wants (S2).*

Care must be individualised starting with the individual (G1, L2, M1, M2, S1) by *"learning more about them in a holistic way" (S2),* and by providing individualised or personalised solutions (S1, L2, N3): *[Person-centred care] is addressing the special needs of everybody very individually. No one size fits all (L2).*

Clients must have informed choice by explaining things in a way that the client understands (L3, M1, U4): *I've always placed importance on explaining results in a clear, concise, patient-friendly or client-friendly manner (U4),* by giving clients complete options (S1, M1, L3) and by guiding the clients to make educated decisions through informed

decision making (S2, M1, U1): *It's about the patient or client being informed enough to make decisions about how they're best looked after (S2).*

Clinicians must also treat the client with respect: *person-centred care is being seen on time… [it] is being dealt with respectfully by all staff (L1)*; and build trust and rapport with each client: *Develop a rapport with our clients and a trusting relationship even if… there's not a rehabilitation pathway (U4).* Senior managers recognise the need to allow the time for clinicians to listen to the client (L3, U4, M1, M2, S1, S2) and not rush them into purchases (N1, N3): *…allows that time for (the clinician) to explain what the recommendation is, how it fits with (client) goals, how it works with their budget. All of those things rather than just throwing them in a purchase agreement and sending them on their way (L3).*

4.3.5 How senior managers of hearing rehabilitation organisations evaluate person-centred care

When asked, eleven senior managers reported that they did not formally or directly evaluate global or specific aspects of person-centred care within their organisation (G1, M1, L1, L3, S1, S2, N2, N3, U2, U3, U4). One manager was unsure of if person-centred care was evaluated in their organisation (L2):

> *I think we are evaluating it but I'm not one hundred per cent [sure]… Actually, I don't know in what way, so I don't want to give false information (L2).*

Nevertheless, most senior managers described proxy tools for evaluating person-centredness within their organisation.

Some managers reported assessing the person-centredness of their clinicians directly as part of observing clinical practice (N1, G1, L3, U1); or indirectly by asking clients at the reception desk (U1) or by reviewing clinical notes (M2, U1). The manager who chose to observe one appointment for each clinician annually (N1) reported receiving significant resistance from their clinicians. Some clinicians felt that being observed was unfair to them

given that in-appointment observations are uncommon across Australia beyond the graduate clinical internship. Two managers used clinical coaches to check clinician adherence to organisational best practice (G1, L3), believing that person-centred care was checked as part of clinical coach observations. Managers who relied on indirect, incidental and less formal observations assessed the quality of care provided when clients reported their experiences to reception staff (U1, M2, M3):

> *Quite often even if I'm not at the front counter, I'll spend some time down there chatting to receptionists… just to get a feel of how things are going (U1).*

Positive feedback about the service received from clients and their family members indicate that person-centred care was provided (M2, M3). Managers who still practice as clinicians may also learn more when they inherit the client who had previously seen another of their clinicians (N1). In university clinics, audiology students on placement may also feedback to senior managers clinician practices perceived not to be person-centred:

> *I have my spies, so for example there was some student surveys that came back a while ago complaining about a clinician not being empathetic to parents, and that was duly noted (U2).*

Informal observations may also occur when a manager audits the clinician's notes within a file (U1, M2, N1, L1, L3). In some organisations, files may be audited by the clinicians themselves (L1), through an internal random audit (L1), or by audits conducted by a party external to the organisation (N1, L1). Unusual cases may be identified for audit that may reveal what is going on with the clinic or the patient (U1). Through file audits, managers may make further observations if client goals have been met or if family members have been invited to or have attended client appointments:

> *When we do a case note audit… 50 percent of case note audits have family involved in the goal setting (N3).*

Several senior managers shared the view that they were evaluating person-centred care effectively through their choice of alternative measures that assessed client or financial success. For example, they believed that person-centred care was implied by their client numbers, either by having consistent numbers of new or transferring clients or by having existing clients refer others to the organisation (M2, M3, L1). Client retention, measured by the number of clients returning for annual hearing reviews, also implied person-centredness since only satisfied clients were expected to return (L1). One manager believed that they can see if person-centred care is provided "*out of the numbers*", underpinned by the belief that financial success is only possible if person-centred care is successfully provided:

> *[I] have a very good overview what kind of clinicians we have in the places, because you see this out of the numbers. You see this immediately out of the numbers… when you're that long in audiology, you just see out of the figures that they are generating... Immediately. I mean, the KPIs we do for every clinicians every month is very, very deep. Very deep, okay? And then we know exactly from these figures already, what are the strengths of this person, where are the weaknesses of this person and so on. (L2)*

Person-centred care was also indicated by clients who achieved their hearing aid outcomes; the meeting of client goals was evaluated using the clinician-completed COSI (M2), hearing aid use via data logging (M2), or through hearing aid metrics such as the type of devices fitted (M2) or number of appointments required by the client (M2). Formal surveys were sent to clients to assess hearing aid satisfaction, benefit or use; client satisfaction with the service; or how likely a client may recommend the organisation to

friends and family members. Most formal surveys, however, were only sent to clients who retained their hearing aids and within three months of their initial purchase. Non-adopters were not surveyed in several organisations. Managers interpreted high hearing aid uptake, usage and satisfaction as indicators of person-centredness, for example:

> *I guess working in other places that I don't think were particularly patient centred, the satisfaction rate of the client seems to be much lower. I think the uptake of rehabilitation is lower. I think of the clients we fit they, with the surveys that we get back, seems to have a very high usage rate compared to the average issues that you see in talks and conferences. It just makes us feel like we must be getting them on the path in the right way. (S1)*

One manager did not evaluate person-centred care at a clinical level but believed that person-centred care was evaluated at a business level through client focus groups used to understand the client experience (L1). Findings were used to inform future marketing strategies, while another manager used focus groups with adults to evaluate service delivery (G1).

Despite not employing formal measures to evaluate global or specific aspects of person-centred care within their organisations, several managers believed that their choice of alternative measures revealed that the care they provided to the clients was more person-centred than their competitors. For example:

> *Yes, I have a very strong view that the way I do business is extremely different to a vast majority of the industry. I have a very strong view that our patient centred care is at the high-end and that the vast majority, not necessarily private practise but certainly the other major places, are at a very low end and I make that statement based on the clients that have consistently come to me*

> *from other providers and I'm horrified that their client outcomes, lack of attention, lack of real understanding… (M2)*

Only one manager questioned if their use of alternative measures truly evaluated person-centredness:

> *Yeah, because we essentially don't evaluate outcomes well enough, I don't think. We're more concerned with individual satisfaction probably than we are, "Do they see it as patient-centred care?" Maybe that comes from what we determine as "experts," quote unquote, is important. But maybe that's not what's important to our clients. I don't know. (N2)*

4.3.6 The perceived facilitators or and barriers to person-centred care evaluation as reported by senior managers of hearing rehabilitation organisations, in the context of the COM-B model

A summary of the major facilitators of and barriers to person-centred evaluation using the COM-B model is shown in figure 4B. A list of all identified facilitators and barriers can be found in appendix 8.5.

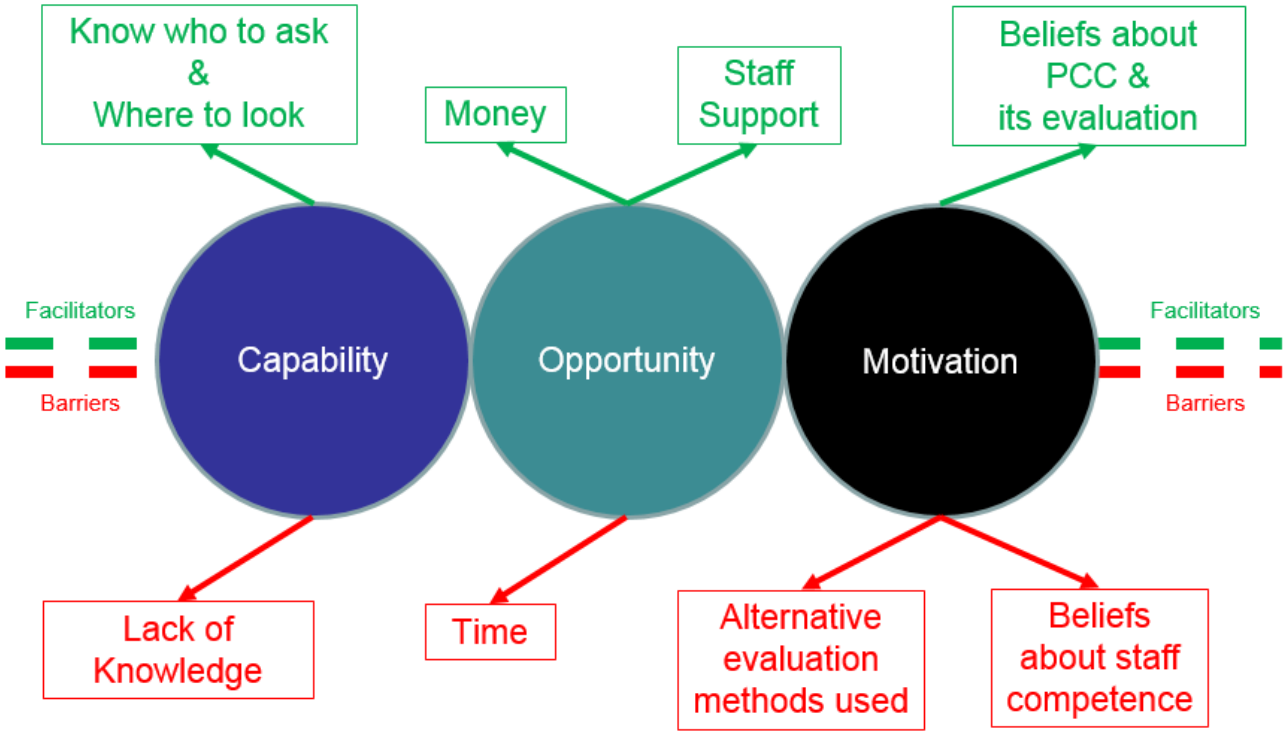


Figure 4B. The facilitators of and barriers to person-centred care evaluation as reported by senior managers of hearing rehabilitation organisations, divided into COM-B elements of Capabilities, Opportunities and Motivations.

4.3.6.1 Capability

The most pertinent capability barrier to person-centred care evaluation arose from senior managers' lack of knowledge about the tools available for evaluating person-centred care. One senior manager from a large organisation was unsure if person-centred care could be successfully evaluated:

> *I will even say it's impossible... Unless you do – phew! – really a very, very detailed questionnaire which you actually have to do with every patient. (L2)*

Furthermore, it is the client who ultimately decides if the provided care was person-centred:

> *...at the end of the day, the patient decides, not us. They evaluate whether we've met it or not. Because I could be saying, "But we have, we have," and*

> *they go, "I'm sorry, but you haven't" (laughs) because in my mind, the equation was different and you need to work out what that is for every person. (L1)*

On the contrary, other senior managers knew who to ask to find out how to evaluate person-centred care. Some larger organisations had access to research officers or librarians (N2, G1), while smaller organisations could utilise the support of their practice manager (M2). Several managers personally knew where to look to find current research on person-centred care, such as the Ida Institute, audiology conferences, audiology professional bodies, leading researchers or their local universities (S2, U4, G1). Some senior managers were able to describe potential methods for evaluating person-centred care (S2, U4):

> *I guess you would have to define what the clinic thinks that is. You would have to either assess each clinician with their clients. I guess you could either self-report. Otherwise, you'd have to record each appointment and then get an independent opinion on whether or not they're performed person-centred care. Secondary measure would be to actually ask the client, send out a letter or form or interview the client and see whether they feel like they had control or choices about their own care. (S2)*

Senior managers did not report physical capability as a facilitator or barrier: there were no factors that pertained to physical skill, strength or stamina factors that influenced the evaluation of person-centred care.

4.3.6.2 Opportunity

Senior managers described physical and social opportunities that affected person-centred care evaluation. The major physical opportunity barrier reported by several managers was having

inadequate time to evaluate person-centred care given their other tasks (N3, L2, M2), although some considered it an important task:

> *Do I have enough time to do that? I'll probably have to say: "No". Should I spend more of the time I have doing it? I should probably say: "Yes". (N3)*

Money was not considered a barrier to person-centred care evaluation in most organisations, especially if person-centred care evaluation tools could be appended to current evaluation tools (such as by modifying client satisfaction surveys or amending clinician notetaking templates) (L3, S2). However, managers expressed the need for affordable and cost-effective person-centred care evaluation methods (S2, U4). Smaller organisations reported that video recording was perceived as an inefficient method to evaluate person-centred care in both money and time (S2, U4).

Even if senior managers wanted to evaluate certain aspects of person-centred care (such as family member attendance at client goal setting appointments), it was practically difficult to do so:

> *But when we came to review the notes, not everyone will recall whether a family member was present during that goal setting, so it was very hard to measure. So that's something that we'll reflect on, maybe improve upon in coming years. So that was the goal, but we had no real way to measure it. (N3)*

In terms of social opportunities, senior managers reported that they believed that there were bottom-up and top-down support to facilitate person-centred care evaluation within their organisations. Senior managers who did not formally evaluate person-centred care believed that clinicians and reception staff would support person-centred care evaluation if their buy-in was sought by explaining the purpose and process of evaluation and by inviting staff to provide feedback on the process (S1, L3). One organisation ceased attempts to survey clients

on electronic tablets due to reception staff discomfort with the process (U2). Another manager reported that they observed each clinician for one appointment annually but found that clinicians remained resistant to observations. Given that in-the-room observations are rare within Australian audiology, clinicians described their experience of observations were uncomfortable, unfair, and unhelpful:

> *They were completely uncomfortable about it. They thought that that wasn't fair on them, you know? It hadn't been part of the way they had worked before… Nobody has refused. Some of them have just been grumpy. (N1)*

By contrast, one senior manager reported that their clinicians did not mind that managers reviewed client files or diaries:

> *For my other clinicians, I go through their diary and I have files pulled and I assess their files, whether they do or they don't know, and they don't care anyway. (M2)*

Senior managers who were owners of small to medium organisations could make the decision to evaluate person-centred care for their organisation (S1, S2, M1, M2). Top-down support was also available to senior management in larger organisations from board members:

> *Yep if it was something I decided because I can make that decision, and I would present it to the leadership team as something I felt we should do, and generally they're pretty happy to be guided by my opinion. (L3)*

Most managers were able to delegate the entire process of evaluating person-centred care from identifying suitable tools to its implementation. This was more prominent among managers without a clinical background (U1, L2). The staff member delegated the

responsibility for evaluating person-centred care would typically be the head of clinical practice in larger organisations (L2).

4.3.6.3 Motivation

Several senior managers believed that person-centred care was important, and consequently needed to be evaluated (M2, N3):

> *Yes, it's highly important. If you get it wrong there'll be a tapering period, but we'll eventually go out of business, so if we're not doing it right, and the only way we know we're doing it right is measuring it. (M2)*

Other managers discussed the importance of evaluating person-centred care to facilitate change among their clinical staff:

> *We've got clinicians practising as long as I've been alive, and to tell them that things are different, they need to understand the why. So I think for us to evaluate not only ensures we're providing it, if we evaluate it, but it gives us information to then present to those people that may question what it is. But I also think that by evaluating it, it gives some clarity around what good patient-centred care is… Like when our coach has sat it on appointments, she's done pre-appointment discussion with them, and got quite a lot of pushback. At the end of the appointment she said to them, "You're just giving it a different name", so I guess that would be if we were able to evaluate it would give us some information to say, "Hey, what you're doing is patient centred care, and you're doing a great job". (L3)*

Some managers had not considered evaluating person-centred care prior to the present study, and not all managers equally valued person-centred care evaluation. One manager relegated person-centred care evaluation to the domain of theoretical consideration:

> *This is a bit theoretical... Yes of course in an ideal world it would be good. But then sorry, it is not so… (L2)*

The choice of evaluation method might affect the manager's decision to implement it. For example, managers in smaller organisations reported that they would not want to use appointment recordings to evaluate person-centred care:

> *And it comes back to the question about how you would do it. I guess you would ask him to self-report or ask the clients. I wouldn't have the time or the inclination to listen to a recording of the appointments. (S2)*

Senior managers shared conflicting views on whether it was their role to evaluate person-centred care. Several felt that it was their role to evaluate person-centred care, since they were ultimately responsible for clinical practice (M3). In larger organisations and for managers without clinical backgrounds, person-centred care was the role of the head of clinical practice since managers were too busy and had more pressing demands than to directly evaluate person-centred care:

> *Look I personally, I have a different task. I mentioned it before. I have to make sure that the whole company is surviving and is profitable also and looking good for the future. I struggle sometimes with very simple things that we have enough clinicians out in the field you know... there are more basic problems I have, in order to just run my sites, yeah? Now you are asking me how to evaluate on each guy… (L2)*

Managers held several beliefs which were major barriers to person-centred care evaluation. The first belief was managerial confidence in current clinical processes and staff competence. Several managers provided examples of how person-centred their organisations were to justify why person-centred care was not directly evaluated. For example, managers

who were either the sole or lead clinician did not feel that person-centred care needed to be evaluated since they were self-accountable (S2). Others believed that their care process was person-centred by design, forcing their clinicians to be person-centred, and therefore did not require formal evaluation.

> *If you put those systems and processes in place that you expect your staff to follow, then it facilitates by default their ability to be client focused. If you provide them with some good written materials and reporting tools and all those things that lay them down that path simply by following what your organisations needs them to do, you get that. (M1)*

Strong beliefs about person-centred practices reduced the perceived need to evaluate person-centred care. Since senior managers made decisions around staff hires and retention, they felt that there was no need to evaluate person-centred care because they have "good clinicians" and trusted in their staff's abilities to deliver person-centred care:

> *I think I would argue a lot of our clinicians were doing that maybe on an unconscious level anyway. I think that good clinicians always have… I would argue with the team we have here, that's why they're here… No, I don't monitor it. But again, I believe good clinicians are good at that. (U2)*

Unless there were negative consequences from current alternative measures, there was no pressing need to implement new person-centred evaluation tools and manage the side-effects of introducing new measures:

> *I guess ultimately each individual client is assessing that for themselves and if we weren't a successful business, it would mean that people are not coming back cause we're not treating them the way they want to be treated. But then that opens up a lot of other questions. (S2)*

Moreover, senior managers argued that current alternative measures already accounted for the client experience so person-centred care did not require direct evaluation:

> *If we are having empty diaries, and we're having unhappy patients, then we need to start looking at why that is the case, but we're not getting that at the moment. The discrete rule is in there. (U3)*

A few senior managers believed that person-centred care evaluation tools had to provide new and better information beyond current alternative measures (S2, L2). However, some managers did not want to know of client concerns if they could not make the requested changes to their organisational process:

> *I think there's a little bit of not asking questions you're not prepared to hear the answer to as well, in terms of what can we change here based on what we might hear back. (U2)*

Another manager argued that the collection of too much information may lead to "analysis paralysis" and hinder effective decision making (L3). However, this meant that in such organisations, they were only interested in narrowing feedback to clients who went on to purchase devices. This meant a greater exposure to confirmation biases from already satisfied clients.

> *We don't monitor or seek the feedback from someone who has purely just come for a hearing test... There is no formal method of seeking feedback for those people, partly because we have a lot of clinicians, we can't be monitoring every single person that comes through the door. (M1)*

4.3.6.4 Considerations for improving person-centred care evaluation in hearing rehabilitation organisations according to senior managers

Consistent with the pragmatic overall design of this research, senior managers were asked an additional question about their own criteria for implementing person-centred care evaluation within their organisation to capture anything missed by the COM-B process. Senior managers listed practical considerations in selecting a suitable person-centred care evaluation tool for ongoing use, such as minimising how long it took clients to complete the survey (M2, M3, N4) and for the organisation to collect (N3), interpret (N3) and act on results (N3). The chosen instrument must be affordable and cost-effective to implement (L1, M2, N3) and be acceptable to their clinicians (S1, M2). The instrument must be evidence-based (S2, N3), validated and linked to successful outcomes (G1, M3), and provide useful information beyond what is provided by current tools (L1, S2, U4) to give the organisation an advantage (M2). However, the availability of a suitable tool may not guarantee widespread use among hearing rehabilitation organisations.

4.4 Discussion of phase one results

This chapter explored five research questions as part of the first phase of the exploratory-sequential mixed methods research. The first phase of this thesis aimed to: i) investigate how senior managers of hearing rehabilitation organisations in Australia defined and evaluated success; ii) investigate how senior managers of hearing rehabilitation organisations defined and evaluated person-centred care; and iii) identify the perceived facilitators of and barriers to person-centred care evaluation according to senior managers of hearing rehabilitation organisations in Australia, in the context of behavior change theory (i.e., the COM-B model).

4.4.1 Key Findings

Senior managers defined success through two interrelated core themes (client success and financial success) and three broader themes (staff factors, the organisation's ethos, the

manager's role). Financial success was seen as the result of client happiness, while client success could only be achieved and sustained in a financially viable organisation. The double bottom line describes the interplay of client and financial success. However, financial success was more rigorously evaluated across all clients as compared to client success, in which case formal methods such as surveys exploring satisfaction or likelihood of recommendation were only employed to evaluate clients who were hearing aid adopters. Hearing device sales were, however, recognised by senior managers as the most lucrative part of financial success in hearing rehabilitation organisations. Qualitative findings from this research has described the relative importance and use of various markers of success previously identified by previous research as important for organisational success (Taylor, 2016; Kasewurm, 2016) across organisational types seen in the Australian hearing rehabilitation context.

While senior managers understood the crucial interplay between client and financial success, several did not recognize the potential role that staff factors have in client and financial success. Given that person-centred care is highly dependent on the delivery of services by the clinician (Grenness *et al.*, 2014a), the lack of recognition of staff factors may explain why person-centred care is not widely observed in Australian hearing rehabilitation (Ekberg, Grenness & Hickson, 2014, 2017; Ekberg *et al.*, 2014, 2015; Grenness, *et al.*, 2015a, 2015b; Sciacca *et al.*, 2017). Staff morale and satisfaction is recognized as a key motivator for staff to provide person-centred care (Gillespie, Florin & Gillam, 2004) needed to achieve client and financial success (Lee, Lee & Kang, 2012; Charmel & Frampton, 2008).

Despite the reportedly critical importance of person-centred care for client and financial success, person-centred care was not formally evaluated as part of success. As a group, senior managers could collectively define the various aspects of person-centred care consistent with the literature (Grenness *et al.*, 2014a; Meyer, Hickson & Scarinci, 2019), although most senior managers individually described only a few aspects of person-centred

care. However, the evaluation strategies for success and person-centred care reveal a mismatch between what is reported (definitions) and what is practiced (evaluated), presenting an evidence-practice gap not dissimilar to clinicians who report a preference for person-centredness (e.g., Laplante-Lévesque, Hickson, & Grenness, 2014) but were not observed to comprehensively implement person-centred care in clinical practice (e.g., Ekberg, Grenness & Hickson, 2014, 2017; Ekberg *et al.*, 2014, 2015; Grenness, *et al.*, 2015a, 2015b; Sciacca *et al.*, 2017).

Barriers to person-centred care evaluation included beliefs about staff capability and organisational processes being inherently person-centred. Since senior managers believed that person-centred care led to client success and thus financial success, they believed that they delivered person-centred care by implication of achieving organisational goals. Several managers believed they had further evidence that they provided more person-centred care compared to their competitors based on transferring clients who report negative experiences at previous hearing rehabilitation organisations. There is a great risk of confirmation bias with transferring clients report of previous negative experiences in the absence of nationally available benchmarks on service quality of person-centredness, providers cannot know if transferring clients are the norm, represent a significant proportion of their competitors' clients, or are merely isolated examples. Competitors' clients with positive experiences cannot provide feedback to them. This may explain why senior managers may inaccurately believe that their services are more person-centred than their competitors in the absence of formal measures and nationally available benchmarking data.

Our findings follow a similar pattern to an online survey of 93 clinicians and managers that aimed to explore their use of patient-reported outcome measures (PROMs) across England, Scotland and Wales (Ferguson & Olson, 2019). Participants reported using PROMs to enhance care, improve their services or track outcomes ahead of obligatory

reasons. However, their study found that only 32% of participants used formal surveys to identify patient needs, readiness or motivation compared to more personal evaluation methods – such as interviews of clients and their family members (Ferguson & Olson, 2019). Participants who reported not using formal evaluation measures did not believe that the benefits (perceived value) outweighed the costs of the time taken to collect and process client surveys (Ferguson & Olson, 2019). This was consistent with senior management reports regarding their own criteria for a person-centred care evaluation tool (see *4.3.6.4*). The availability of person-centred care evaluation measures may not guarantee future use; there have already been more than one thousand questions used to formally assess hearing rehabilitation (Whitmer *et al.*, 2016), although most were not in use by senior manager participants. Given how important person-centred care evaluation is for a top-down approach for person-centred care (e.g., Luxford, Safran & Delbanco, 2011), an evidence-based approach is needed to identify suitable interventions for improving the evaluation of person-centred care in hearing rehabilitation organisations (Barker, Atkins & de Lusignan, 2016; Coulson *et al.*, 2016).

4.4.2 Strengths and Limitations

This study provided new insights into how senior managers define and evaluate success and person-centred care by using a qualitative research methodology (Barbour, 2001; Sandewloski, 1995; Willis, Jost & Nilakanta, 2007). Findings from the COM-B model can be used to inform evidence-based approaches (such as the Behaviour Change Wheel) for identifying suitable interventions for the implementation of person-centred care evaluation in hearing rehabilitation organisations (Barker, Atkins & de Lusignan, 2016; Coulson *et al.*, 2016; Michie, Atkins & West, 2014; Wong & Hickson, 2012). However, there were limitations in this research primarily associated with the use of qualitative methods. For example, small sample sizes in qualitative research reduces the generalisability of results as

each participant has the potential to greatly influence overall research findings. Qualitative research findings are not intended to be widely generalised, and results are not designed to be repeatable (Rolfe, 2006; Sandelowski, 1993). For example, it was possible that the importance of person-centred care for success was over-emphasised by the self-selection of senior managers who chose to participate in this research compared to those who declined to participate. Although the purpose of the qualitative exploratory phase was to obtain a diverse representation of views across senior managers of various hearing rehabilitation organisations across Australia, it is worth noting that the sixteen participating senior managers were collectively responsible for more than 20% of Australian clinicians (audiologists and audiometrists) at the time of interviews suggesting that - even for a qualitative sample - participants' views affected a substantial number of clinicians across Australia.

Most of the limitations of qualitative research were mitigated by the pursuit of scientific rigour as described in the methods (see *4.2.6*). This research relied on using a philosophical approach (pragmatism) that was consistent with the choice of qualitative methods and analysis approaches (Barbour, 2001; Morgan, 2014), utilised a purposive sampling method to obtain greater variety in findings (Barbour, 2001; Morse & Richards, 2002; Patton, 2015; Sandelowski, 1995), ensuring coding consistency by coding checks from the research team (Barbour, 2001), and triangulating participant responses with materials (such as surveys) provided to the main researcher (Barbour, 2001). This was particularly relevant for the broader themes identified in *4.3.2.2*. Although "organisational ethos" and the "manager's role within the organisation" were both questions contained within the topic guide, participant responses analysed using the qualitative approaches described within this chapter confirmed that both areas were authentically broader themes of how senior managers defined success. Finally, the mixed-methods study design in this thesis overcomes some of the limitations from solely qualitative or quantitative approaches; the subsequent quantitative

phase uses findings from this phase and provides a cross-check and validates results from the qualitative phase and vice versa (Fetters, Curry & Creswell, 2013).

4.4.3 Future Research

There are several recommended areas of future research. Firstly, as already mentioned, evidence-based methods are needed to identify suitable interventions for the implementation of person-centred care evaluation in hearing rehabilitation organisations. Secondly, the results revealed the absence of benchmarking tools for small to medium-sized organisations to compare against similar sized organisations. Further research is needed to assist in the creation of an external tool that validates the various determinants of success identified from this research. Finally, the results showed that person-centred care was not evaluated in a consistent manner across organisations and was not publicly reported. Pending the availability of clinically validated person-centred care evaluation tools, future research may also explore the role of public benchmarking for improving how person-centred care is provided by hearing rehabilitation organisations by publicly reporting each organisation's performance against person-centred care evaluation measures. This would further facilitate the use of consistent person-centred care evaluation measures across organisations. The use of public benchmarking is expected to simplify the patient's decision when choosing their preferred organisation (Charmel & Frampton, 2008; Fung *et al.*, 2008; Makarem & Al-Amin, 2014) and aligns with recommendations made by the Australian Commission on Safety and Quality of Care (ACSQHC) (ACSQHC, 2011). By publicly sharing patient care quality information, benchmarking can provide patients with insights into which organisations have better quality care. Increasing competition among organisations may in turn lead to increased investment in quality improvement activities to satisfy patients resulting in higher patient ratings (Fung *et al*, 2008; Makarem & Al-Amin, 2014).

4.5 Conclusion

The present chapter explored five research questions as part of the first phase of the exploratory-sequential mixed methods research. The first phase of this thesis aimed to: investigate how senior managers of hearing rehabilitation organisations in Australia define and evaluate success; investigate how senior managers of hearing rehabilitation organisations define and evaluate person-centred care; and identify the perceived facilitators of and barriers to person-centred care evaluation according to senior managers of hearing rehabilitation organisations in Australia, in the context of behavior change theory (i.e., the COM-B model). Senior managers defined their core success as the interplay of client success and financial success. Financial success was evaluated more rigorously for all clients compared to client success - even though it was considered a result of client success. Client success was assessed primarily in clients who adopted hearing aids. Senior managers defined person-centred care well as a group and recognised that person-centred was critical for client success. However, person-centred care was not directly evaluated in nearly all hearing rehabilitation organisations. Facilitators of and barriers to person-centred care evaluation were identified to identify suitable interventions for implementing person-centred care evaluation in hearing rehabilitation organisations. Senior managers' psychological capability (knowledge of suitable tools), physical opportunity (time) and social opportunity (staff support) were barriers to evaluating person-centred care, but the major barrier was reflective motivation which included senior managers' beliefs about the person-centredness of their clinicians and clinical processes and the absence of consequences for not evaluating person-centred care. Senior managers reported that they had the physical opportunity (money) to implement person-centred care evaluation if there was a suitable, efficient, effective and clinically validated tool available for evaluating person-centred care. Findings were used to inform the

research design of the quantitative second phase (chapter five). Implications of these findings in the context of the broader research are discussed in chapter six.

5 Phase two: Evaluating the organisational-valued outcomes of a psychosocial communication intervention delivered to graduate intern audiologists

5.1 Introduction

The last chapter investigated the criteria used by senior managers to define and evaluate success and person-centred care within their hearing rehabilitation organisations as part of the first phase of the exploratory sequential mixed-methods design of this thesis. The aim of the present chapter is to evaluate the organisational-valued outcomes of a person-centred care intervention in a hearing rehabilitation organisation setting. Specifically, this chapter evaluates a psychosocial communication intervention delivered to graduate intern audiologists in a non-randomised cohort comparison trial on person-centred care evaluation measures and organisational-valued client, clinician and financial outcomes identified from the first phase. The pragmatic use of organisational-valued outcomes is expected to increase the likelihood that a successful intervention is adopted by senior managers of Australian hearing rehabilitation organisations. The present chapter describes the psychosocial communication intervention but does not consider the development of the intervention itself as it was designed in a related study beyond the scope of this research. Chapter five also describes the second phase study design, materials, hypotheses, procedure, results and provides a discussion of key findings and study limitations.

5.2 Methods

5.2.1 The psychosocial communication intervention

The HEARhelp Ask Understand Deliver (HEARhelp AUD) intervention was developed by members of a broader HEARing Cooperative Research Centre (CRC) research team to improve the practice of person-centred care. In this section, a brief overview of the pilot intervention is provided. Further details of the intervention including its design, rationale and justification were beyond the focus of this thesis and is reported elsewhere (e.g., Barr *et al.*,

2018, in preparation). This thesis focuses on the outcomes of intern-related aspects of the intervention, not the process and effectiveness of the intervention itself or supervisor outcomes evaluated as part of the broader HEARing CRC xR 3.3.5 research project.[9]

The Behaviour Change Wheel was used to identify a suitable intervention to improve the psychosocial communication skills of audiologists, which was identified from the literature as a key clinical practice gap that needed to be addressed to deliver person-centred hearing rehabilitation (Ekberg, Grenness & Hickson, 2014, 2017; Ekberg, Meyer, Scarinci, Grenness & Hickson, 2014, 2015; Grenness, Hickson, Laplante-Lévesque, Meyer & Davidson, 2015a, 2015b; Michie, Atkins & West, 2014; Sciacca *et al.*, 2017). The COM-B model was also used in the fourth step of the Behaviour Change Wheel process to identify the barriers and facilitators reported by audiologists for engaging in psychosocial communication with adult clients during audiology appointments. The resultant intervention was termed the "HEARhelp AUD". The HEARhelp AUD intervention sought to improve the implementation of psychosocial communication in audiology consultations by utilising bottom-up and top-down behaviour change techniques [such as improving the coaching and mentoring skills of supervisor audiologists under a train-the-trainer model (Russo *et al.*, 2014; Pfund *et al.*, 2013)]. HEARhelp AUD's premise was to improve the psychosocial communication skills among audiologists: clinicians should ask (A) clients psychosocial questions of open-ended nature, seek to understand (U) their clients' feelings and perspectives by actively listening to clients and their family members without interrupting, and deliver (D) psychosocial care by responding to clients' psychosocial concerns with empathy and using psychosocial information in management planning (Barr *et al.*, 2018). The intervention used multiple behaviour change techniques to change intern communication behaviours. The HEARhelp AUD intervention had three arms: 1) an education and training arm; 2) an extended in-house

9 Please refer to the preface (p.9).

coaching arm; and 3) an organisational support and environmental enablement arm (Barr *et al.*, 2018).

The education and training arm (arm 1) provided initial training to the audiologists on psychosocial communication at their intern orientation, and also consisted of four quarterly teleconferences between audiologists and the research team. Intervention group interns and their supervisors attended an initial workshop prior to the standard organisational training. The workshop presented the latest research and justification for psychosocial communication and person-centred care and included role playing opportunities and written resources. The workshop was delivered by the HEARing CRC research team comprising of two experienced research audiologists (CB and EE) and an audiologist (NC) who had just completed her internship year.[10] Intervention group interns were encouraged to set quarterly clinical goals with increasing difficulty to improve their use of psychosocial communication with clients over the course of the internship. They were asked to meet with their supervisors regularly and supervisors were asked to use psychosocial communication techniques with the interns during supervisory meetings (arm 2). The coaching arm included a workshop for supervisors in how to coach psychosocial communication, as well as a resource kit for supervisors and interns to set communication goals, receive communication feedback, observe psychosocial communication and role model during regular supervision meetings over the course of the internship (Barr *et al.*, 2018). The enablement arm (arm 3) ensured that organisational senior management, middle management and intern supervisors were supportive of the purpose, implementation and outcomes of the HEARhelp AUD intervention. Additional support was provided by the research team and clinical managers. Psychosocial communication training was augmented by organisation resources allocated towards the internship, allowing intern supervisors to provide regular psychosocial coaching for their interns. Participating interns

[10] The contributions of CB, EE and NC to this thesis were acknowledged in the preface (p.9).

were encouraged by the organisation to practice psychosocial communication in their appointments and faced fewer consequences against typical organisational metrics normally used to evaluate intern performance during the duration of the intervention. Environmental reminders such as HEARhelp AUD branded coffee cups within clinical rooms to remind clinicians to remain faithful to the intervention.

5.2.2 Choice of participants: Graduate intern audiologists

Previous research suggests that new clinicians are the likeliest to show the greatest propensity for change since they did not have to unlearn previous habits and behaviours (Gupta, Boland & Aron, 2017). Graduate intern audiologists were targeted to maximise any observable effects of the HEARhelp AUD intervention.

In Australia, prospective audiologists complete a Masters level course at one of six Australian universities[11]. Graduates complete a one-year accreditation internship post-graduation to become an audiologist, which allows them to practice independently of supervision, access third party funding for devices and services, and apply for membership in international professional bodies. During the process of accreditation, they are known as graduate intern audiologists. Prior to 2019, graduate intern audiologists who wished to be accredited with the peak professional body (Audiology Australia) had to complete a 48-week internship programme through their employer under the supervision of one or more senior audiologists over four quarters. The internship begins with closely monitored supervision, with increasing freedom to practice independently as each internship quarter progresses.

For this research, we targeted graduate interns who entered an internship program with the participant hearing rehabilitation organisation. The organisation was chosen due to their size and willingness to participate. Furthermore, the organisation hired forty-nine interns

11 At the time of writing, the six universities in alphabetical order were: Flinders University, LaTrobe University, Macquarie University, The University of Melbourne, The University of Queensland, and the University of Western Australia

across Australia for 2018, already had an established internship program that was standardised across the country and were supportive of research goals. The standardised internship program covered organisational clinical processes, administrative procedures and an orientation to the profession. Under the train-the-trainer model, supervisors were eligible to participate if they were responsible for an intern in 2018. Although supervisors were assessed as part of the overall study, supervisor data did not form part of this thesis, which focused on the graduate intern audiologists.

5.2.3 Cohort comparison design

Although a randomised design was desired, the intervention group was allocated regionally to meet the partnering organisation's requirements in a pragmatic way. Sixteen interns in three Australian states were allocated to the intervention group; thirty-three interns in the remaining five states/territories continued with standard education and support and were eligible for the control group. Thus, the study design is described as a non-randomised cohort comparison (or group cluster) trial. Differences were sought between groups, but the sample size for each group was based on the number of available interns and research resources, not statistical power.

The intervention group graduate interns received the HEARhelp AUD intervention in addition to the standardised internship program offered by the organisation. Intervention group participants were advised not to disclose that they were part of the intervention group. Control group participants completed the standardised internship program without modification and were not provided further information about the intervention or study. Consequently, only eleven control group interns completed survey materials to be included in the study.

The final sample for this pilot study consisted of sixteen intervention group and eleven control group interns. Since the psychosocial communication intervention is for the

benefit of attending clients, new clients who saw a participating intern at their initial hearing assessment appointment with the organisation and consented to being contacted were invited to participate in this study.

5.2.4 Materials

5.2.4.1 Organisational-valued outcomes

The cohort comparison was assessed against organisational-valued outcomes identified from the first phase. First phase findings suggest that senior managers value the interplay of client success and financial success. Most managers reported evaluating client success through hearing aid benefit surveys. In this study, we chose to expand targeted clients to include non-adopters. Financial success was typically assessed through financial metrics pertaining to hearing device uptake, technology level and revenue. Broader factors included staff outcomes, the manager's role and the organisation's ethos. The manager's role and the organisation's ethos were not relevant to the scope of study outcomes since the study occurred within only one organisation, and evaluation tools for these factors (e.g., annual performance reviews) were not available for this study. Staff outcomes were assessed in this study through the Voice Climate Survey. Finally, clinical evaluation of person-centred care was not widely reported by senior managers in the first phase. Therefore, surveys considered relevant to the intervention were trialled in this study to explore the link between person-centred care evaluation and organisational-valued outcomes.

The final selection of materials was iteratively chosen in conjunction with the participating organisation. The organisation held concerns about commercial sensitivities that needed to be upheld despite the potential for insightful new findings, which excluded direct evaluation of certain financial aspects pertaining to revenue, costs and profitability.

5.2.4.1.1 Clinician outcomes

Most organisations in the first phase informally evaluated clinician factors of job satisfaction, workplace engagement and intention to stay. One organisation reported using the Voice Climate Survey (VCS) (Langford, 2009) annually, and permission was sought from the survey's author to use the VCS for this study. The Voice Climate Survey uses a five-point Likert agreement scale to explore employees' feelings across seven themes and thirty-one subthemes, exploring aspects such as job satisfaction, wellness, motivation and initiative, the organisational direction, and intention to stay with the organisation (Langford, 2009). Since some questions were not applicable to new employees, the survey's author confirmed that these sub-themes could be removed without affecting the instrument's validity. Thus, the original 102 questions were reduced to 82 questions without compromising the remaining six themes and twenty-five subthemes. One major theme (People) and six sub-themes (Diversity, Safety, Facilities, Motivation & Initiative, Talent & Teamwork) were removed. The remaining sub-themes were reliable and had Cronbach's alphas ranging from .77 to .89, and inter-class correlations ranging from .21 to .31. Validity for the survey was assessed by the survey's author internally by exploratory factor analysis (range .42 to .94) and confirmatory factor analysis (range .75 to .89) and externally against management reports of turnover, absenteeism, productivity, customer satisfaction and other factors (Langford, 2009). Further psychometric properties for the survey can be found in Langford (2009).

Interns were asked to complete the modified VCS alongside clinician-rated person-centred measures (see section *5.2.4.1.4*) at the end of the first internship quarter.

5.2.4.1.2 Client outcomes

Client-reported outcomes were evaluated through a multi-faceted postal survey comprising of validated questionnaires and additional questions. The survey content was influenced by

observations from the first phase and the literature, with additional questions introduced by the main researcher (GW) and refined by the research team.

The survey was designed to be adaptively completed in four stages by: i) all clients ii) clients who reported hearing difficulty or hearing loss iii) clients who trialled a hearing aid, and iv) clients who kept their hearing aid(s). All clients (i) were asked about which location they first attended, whose idea it was to make their initial appointment and who attended with them. Clients rated their satisfaction with the clinician seen and the first clinic attended, and how important it was to see the same clinician again. They were asked how likely they were to recommend the initial clinic attended to their family and friends, the perceived value for money of their experience and if they needed an appointment soon. Open-ended questions explored what clients liked best, least and suggested changes to their hearing aid(s) or overall service. Clients were asked if a hearing loss was found or if they had hearing difficulties, and if so, for how long. Clients who reported hearing difficulties or hearing loss (ii) were asked what the clinician recommended for their hearing. Clients reported which options they chose to proceed with, who helped them make their decision, and (where applicable) their reasons for not proceeding with rehabilitation. Clients who trailed a hearing aid (iii) were asked if they were fitted monoaurally or binaurally, their satisfaction with hearing aids, how likely they were to recommend hearing aids to their family and friends, and if they contributed towards the cost of hearing aids with additional features. Clients who returned their hearing aid(s) were asked for their reasons.

Clients who kept their hearing aids (iv) were asked to complete two validated surveys. The hearing aid user questionnaire (HAUQ) (Dillon, Birtles & Lovegrove, 1999) was developed in Australia and is comprised of eleven items that enquire about hearing aid use, benefit, problems and overall satisfaction. Three open-ended questions exploring what clients liked best, least and suggested changes to their hearing aid(s) or overall service were asked to

all clients (i). Australian normative data is available for the HAUQ (Dillon, Birtles & Lovegrove, 1999), and several of the HAUQ's questions are incorporated into the EARtrak survey reported by participants in the first phase. The International Outcome Inventory for Hearing Aids (IOI-HA) (Cox *et al.*, 2000) has seven items that were developed to assess hearing aid use, outcomes, benefits, residual activity limitations, participation restrictions, the impact of hearing loss on others and the client's quality of life. The IOI-HA is used internationally, and normative data is available (e.g., Barr, Quinn & Williams, 2012; Cox, Alexander & Beyer, 2003; Liu *et al.*, 2011). Psychometric properties of the IOI-HA have been reported in several studies (e.g., Cox & Alexander, 2002; Heuermann, Kinkel & Tchorz, 2005). Clients who did not use their hearing aids were also asked for their reason(s) for non-use.

Hearing aid statistics such as adoption rates and the number of appointments were assessed under organisational-financial factors.

5.2.4.1.3 Financial outcomes

The organisation agreed to share organisational-level de-identified information for some key performance indicators pertaining relating to financial outputs. Appointment details from all consenting clients who saw an intern on their first appointment between April and June 2018 were collated two months after their initial appointment. The database included details on the clients' ages, sex, preferred language, intern seen, location attended, number of appointments, and average hearing loss in each ear. Clients who took a device had their hearing aid, accessory or assistive listening device model listed. Secondary metrics could be inferred from these details. For example, the average selling price per client could be calculated from the device model; and the binaural hearing aid fitting rate could be determined by the number of hearing aids adopted for each client.

One of the critical benefits expected from a person-centred approach is an increase in client adherence to clinician recommendations leading to increase hearing device uptake and subsequent use. Hearing aid return rates are expected to also fall as clients adhere to treatment plans. For the organisation, this means improved profitability arising from increased revenue (from more devices fitted) and reduced costs (fewer hearing aid returns).

In this study, we focused only on clients who received hearing services under the federally funded Hearing Services Program (HSP). To consider higher value hearing aids, we explored hearing aid top-up rates. Under the HSP, all clients received fully funded hearing services including initial and triennial hearing assessments and (for eligible clients) appointments hearing aid fittings, follow-up appointments and annual reviews. Clients who meet eligibility criteria (primarily based on hearing loss levels or reported tinnitus severity) may be fitted with a fully subsidised assistive listening device or entry-level hearing aid(s). The fully subsidised hearing aid(s) are known as “free-to-client” hearing aids. Should the client wish to obtain a more advanced hearing aid(s), they can contribute the difference beyond the hearing aid subsidy provided by HSP, colloquially referred to as “top-up” hearing aids.

Phase one revealed that the quantity of hearing devices sold and the relative level of hearing aid technology were important for organisational revenue. The organisation was unable to directly share revenue figures with the research team. Client appointment details collected from the database provided the make and model of each device obtained. From this information, each hearing aid received a rank according to their level of technology, with a fully subsidised (free-to-client) entry-level hearing aid marked at level 1 through to a top-of-the-line device at level 6. The average level of hearing aid technology can signify a proportion of higher end hearing aids.

Although several managers from the first phase expressed that financial factors (i.e., profitability) was a crucial consideration in organisational success (Chapter four), we were unable to calculate profit-related metrics for this study without full access to organisation revenue and costs. While revenue could be reliably estimated from the client database (through the number of appointments or total device revenue), the organisation was not prepared to share commercially sensitive information pertaining to the cost of obtaining devices, renting clinical rooms, staff wages, and administrative and marketing overheads. We were also unable to collect accurate information on hearing aid return rates and long-term trend data.

The organisation was also unable to share detailed cost information due to commercial sensitivities. While some organisations were conscious that clients should be able to have as many appointments as necessary to rehabilitate their hearing, extra appointments generally represent less efficient use of HSP funding for each fitted client. Therefore, by providing us with the number of appointments attended per client and the reason for each appointment, we could estimate if clients were seen efficiently.

Senior managers from the first phase were also interested in whether clients could generate new business for the organisation through positive word-of-mouth by referring others to them. The Net Promoter Score (NPS) is calculated from a single question asking "*how likely are you to recommend X to your friends and family?*", where "X" could be the clinic of attendance, the clinician seen or hearing aids rated on a scale from 0 (not at all) to 10 (extremely likely) (Reichheld, 2003). The NPS is calculated by the proportion of "detractors" (clients who rate between 0 and 6) subtracted from the proportion of "promoters" (clients who rate 9 and 10), to generate a score between -100 and +100 (Reichheld, 2003). Higher scores are considered better for the organisation and suggests increased customer loyalty (Reichheld, 2003), although the predictive capability of the NPS is disputed (Zaki *et al.*,

2016; Krol *et al.*, 2014). The rationale is that truly happy clients (promoters) are most likely to provide positive word-of-mouth, while those with a neutral or worse experience (ratings between 0 and 6) are more likely to detract by advising others not to choose the organisation. The NPS is used widely in business that provide services due to the convenience of having only one question provide further insight into the client experience beyond standard satisfaction measures (Reichheld, 2003). To capture the client experience more broadly, we also asked clients whether they felt that the devices and services received from the organisation represented value for money.

Financial outcomes data were collected through the attendance database (hearing aid uptake, fitting rates, top-up rates, level of technology, average device revenue, and average number of appointments) and through client postal surveys (reported adherence to clinician recommendations, likelihood of recommending hearing aids and the clinic, perceived value for money).

Adherence was ascertained by asking clients who reported having a hearing loss or hearing difficulties two questions: "*what was recommended to reduce your hearing difficulties?*" and "*given those recommendations, which did you pursue to reduce your hearing difficulties?*". For each question, clients could choose as many options as required from eleven recommendation options (nothing, hearing aids, ALDs, communication strategies, communication training, group training, lip reading, partner assistance, apps, print, support groups, the internet or other). The client was considered adherent to the clinician's recommendation if they proceeded with the same options as what was recommended by their clinician.

5.2.4.1.4 Person-centred care evaluation measures

Person-centred care was evaluated through client- and clinician-reported measures. Both clinician-reported measures were collected prior to client appointments and were issued at the

same time as the Voice Climate Survey. The three client-reported measures were collected through the postal survey.

Improved psychosocial communication was expected to improve clinician empathy levels, so clinicians completed the twenty-question Jefferson Scale of Empathy (JSE) to self-rate their perceived levels of empathy on a seven-point agreement scale (Hojat *et al.*, 2001). Psychometric properties of the JSE was initially reported by the survey's authors (Hojat *et al.*, 2002a, 200b), has been found to be internally reliable through confirmatory factor analysis, and has been extensively validated against similar surveys and patient outcomes (Hojat, 2016).

Clinicians were also asked to self-report their beliefs and attitudes towards client involvement and care using the twenty-question Patient-Practitioner Orientation Scale (PPOS), which had been widely used in person-centred care studies within audiology (e.g., Laplante-Lévesque, Hickson & Grenness, 2014; Manchaiah *et al.*, 2014). We used the version modified for audiology, which was found to have good internal consistency for the two subscales contained within the PPOS, namely Sharing (Cronbach's α of .73) and Caring (Cronbach's α of .57) (Laplante-Lévesque, Hickson and Grenness, 2014).

Each client who received a postal survey were asked to complete the Jefferson Scale of Patient's Perception of Physician Empathy (JSPPPE) and the Measure of Processes of Care for Adults (MPOC-A). As its name suggests, the JSPPPE is a five-point Likert agreement scale assessing the client's perception of clinician empathy (Kane *et al.*, 2007), which was particularly relevant in an intervention attempting to improve the psychosocial communication skills of graduate intern audiologists. Psychometric properties of the JSPPPE suggest good internal reliability and external validity found across several medical studies (Hojat, 2016). The MPOC-A attempts to explores the person-centred practice of clinicians across five subscales – enabling and partnership, providing general information, providing

specific information, coordinated and comprehensive care, and respectful and supportive care (Bamm, Rosenbaum & Stratford, 2010). Clients were asked to complete thirty-four questions exploring the extent of care provided by their clinicians on a seven-point Likert scale, with the option of marking each question as not-applicable. This questionnaire was chosen over shorter questionnaires (e.g., Health-care Climate Questionnaire, Consultation and Relational Empathy measure) because it was considered to incorporated person-centred care aspects that took a holistic view of the patient, explored how well the patient is listened to, how their emotional needs were addressed, and client-family involvement in their own care. The original MPOC-A was found to have high internal consistency (Cronbach's α of .81 to .91) and high rest-retest reliability of .73 to .83 (Bamm, Rosenbaum & Stratford, 2010). We used a version that had been previously modified for audiology (Ali, 2017).

Clients who either reported a hearing difficulty or a hearing loss was found were additionally invited to complete the Flinders Program™ Partners in Health (PIH) scale. The PIH assessed respondents' self-management capability in the domains of knowledge, partnership in treatment, recognition and management of symptoms and coping (Battersby *et al.*, 2003). Psychometric properties of the PIH were provided preliminarily by Battersby *et al.* (2003) and later confirmed by Bayesian confirmatory factor analysis (Smith *et al.*, 2017). We used the version adopted for audiology by Convery *et al.* (2018), which was validated iteratively with the assistance of seven adults with hearing loss. Responses range across nine-point scales from never/very little/not very well to a lot/always/very well respectively.

5.2.5 Summary of hypotheses

Table 5A summarises the hypotheses for the quantitative second phase.

Table 5A. *Cohort comparison hypotheses for clinician, financial, and client outcomes, and for person-centred care evaluation measures completed by clients and clinicians.*

Hypothesis	Description
	Clinician outcomes
1a	Intervention group clinicians will have higher ratings on the Voice Climate Survey
	Financial outcomes
2a	Hearing aid uptake rates will be higher for the intervention group
2b	Hearing aid return rates will be lower for the intervention group
2c	Hearing aid top-up rates will be higher for the intervention group.
2d	Average level of technology will be higher for the intervention group
2e	Clients will rate their perceived value for money higher for the intervention group
2f	Fewer appointments are needed for the intervention group
2g	Net promoter scores towards the clinic and hearing aids will be higher for the intervention group
2h	Adherence rates will be higher for the intervention group.

Client outcomes

3a Self-rated hearing device benefit (HAUQ, IOI-HA) will be higher for the intervention group

3b Self-rated hearing device difficulties (HAUQ) will be lower for the intervention group

3c Hearing aid use will be higher for the intervention group

3d Client satisfaction with the first (intern) clinician seen will be higher for the intervention group

3e Client satisfaction with the first clinic attended will be higher for the intervention group

3f Client satisfaction with their hearing device will be higher for the intervention group

3g Client quality of life will be rated higher for hearing aid users from the intervention group

Person-centred care evaluation measures

4a Clinician-rated JSE scores will be greater for the intervention group

4b Clinician-rated PPOS scores will be greater for the intervention group

4c Client-rated JSPPPE scores will be greater for the intervention group

4d Client-rated MPOC-A scores will be greater for the intervention group

4e Client-rated PIH scores will be greater for the intervention group

5.2.6 Data collection procedure

All interns were invited to complete surveys at the end of the first quarter of supervision when the intern begins to have greater independence from their supervisor during clinical appointments. Clinician questionnaires were considered lead variables (Taylor, 2016) since clinician attitudes were likely to influence future client and financial outcomes and were distributed prior to client and organisational outcome data collection.

New clients who saw a participating intern at their initial hearing assessment appointment with the organisation during the second internship quarter were eligible to participate in this study. Participating clients (235 intervention group, 181 control group) had consented to their appointment details being recorded by the organisation and were sent postal surveys two months after their initial appointment. The database contained participating clients' average hearing loss, age, number of appointments, fitted devices and intern seen. A copy of the postal survey is found in appendix 8.6. Although initially designed as an adaptive online survey, the participating organisation required the use of postal surveys due to privacy and communication restrictions preventing the research team from directly contacting clients. To try and improve completion rates, the final design of the postal survey took into account readability considerations including visibility and the simplicity of its language (Douglas & Kelly-Campbell, 2018). A plain language statement and consent form were distributed with each survey along with a reply-paid envelope addressed to the main researcher.

This process of collecting data every two months was repeated for clients seen between April and June 2018: April's clients were surveyed in June, May clients in July, and June clients in August. A two-month assessment window post-initial appointment was selected to ensure that hearing rehabilitation was at an advanced stage for each client, and

better reflected clients final decision concerning hearing device uptake and use. Figure 5A below summarises data collection.

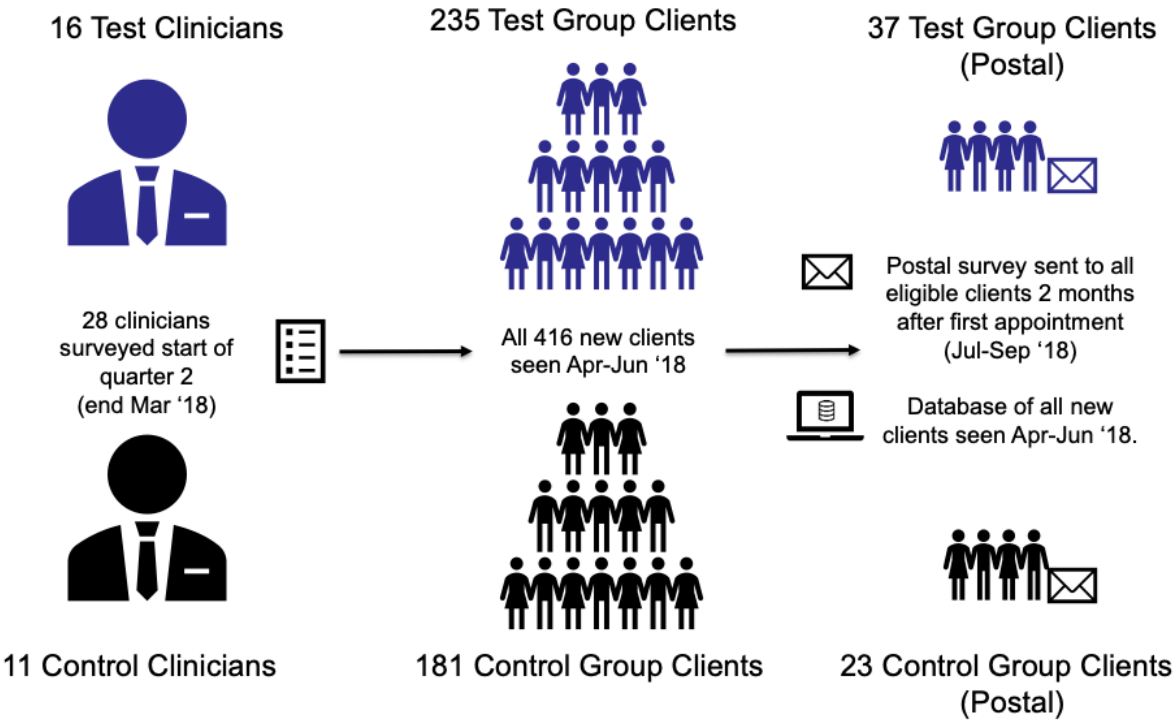


Figure 5A. Participant sample numbers across data collection processes involving clinician surveys, client database and client postal surveys.

5.2.7 Analyses

Collected data from both surveys and the database were primarily quantitative. Statistical analyses were performed in SPSS v25.0 (IBM Software, 2019). Data were treated by type and distribution consistent with previous hearing research (e.g., Solheim, Gay & Hickson, 2018; Walravens, Keidser & Hickson, 2016). For all data, outliers were visually inspected using a boxplot and histogram. Missing data and other non-applicable responses were excluded from analyses. A *p* value of 0.05 was chosen for all tests, with two-sided significance for *t*, Mann-Whitney *U*, and Chi-square tests; and one-sided significance for Fisher's exact test. We chose not to correct *p* values despite testing multiple hypotheses, because we did not assume that all hypotheses are simultaneously held, and that we chose not

to increase the risk of Type II error in order to reduce the risk of Type I error (Perneger, 1998). The decision to not correct chosen *p* values is treated further in this chapter's discussion.

Normal distributions for all data were assessed by *p* values greater than or equal to 0.05 on the Shapiro-Wilk's test for both groups. For normally distributed continuous data, we calculated means, standard deviations and 95% confidence intervals for each group and used t-tests to compare between groups. If at least one group was not normally distributed (Shapiro-Wilk's $p < .05$), data were treated non-parametrically. For non-parametric data, a Mann-Whitney *U* statistic compared the test and control groups using their mean rank. For reporting consistency, we chose not to compare medians for ordinal data even when both groups shared similar distributions and had a Shapiro-Wilk's *p* value greater than 0.05.

For between group comparisons of dichotomous categories (e.g., fitted with hearing aids or not, top-up or not), we used a Pearson Chi-square to test for significant associations and obtain within group percentages. For comparisons where one or more cells did not have a minimum cell count of five, we used Fisher's exact test with one-sided significance to determine if a statistically significant association existed. If a significant result was found for dichotomous categories, logistic regression was used to ensure that demographic factors (e.g., age, gender, average hearing loss levels) did not explain the difference between groups. Predictive tests such as regression were not performed to prevent invalid interpretation of results owing to the low participation rates for survey data and the non-randomised allocation of intern clinicians to groups.

5.2.8 Ethics approval

Ethics approval for this phase (appendix 8.1) was obtained from The University of Melbourne Psychology Health and Applied Sciences Human Ethics Sub-Committee (HREC: 1646070.7) prior to data collection, and all intern clinicians and their clients who completed

questionnaires provided written informed consent. Research adhered to the National Statement on Ethical Conduct in Human Research (National Health and Medical Research Council, 2007).

5.3 Results

5.3.1 Sample characteristics

Table 5B. *Demographic details of participating graduate intern audiologists*

Variable	Intervention Group (n = 16)	Control Group (n = 11)^
Age (years)	24.1 (*range* = 22-29; *SD* = 2.25)	26.0 (*range* = 22-45; *SD* = 7.35)
Gender (n = Female)	14 Female	9 Female
Ethnicity (multiple options selectable)	12 Australian 3 Chinese 1 Indian 1 Sri Lankan	6 Australian 1 Chinese 1 Indian 3 Sri Lankan
Highest Audiology qualification	16 Masters	10 Masters
Secondary qualification level	14 Bachelors 2 Honours	7 Bachelors 3 Honours
Secondary qualification subject	5 Biomedicine 5 Health Science 2 Psychology 2 Science 1 Speech Path 1 Pharmacy	4 Science 2 Health Science 1 Biomedicine 1 Speech Pathology 1 Neuroscience 1 Engineering

Note: ^One control group participant chose not to provide demographic details

Sixteen intervention and eleven control interns completed surveys (Table 5B). Ten control clinicians provided demographic details, eight completed the JSE, and seven each completed the VCS and PPOS. Intern audiologist demographic data suggests that both groups were evenly matched for age. Most participants identified themselves ethnically as Australian and

were female. All participants had completed their Masters degrees in audiology from Australian institutions. There was a range on undergraduate educational backgrounds with an emphasis on science, technology, engineering and mathematics (STEM) majors.

Table 5C. *Sample characteristics of participating clients who saw a graduate intern audiologist in their first appointment with the organisation between April and June 2018*

	Database		Postal Survey	
	Intervention	*Control*	*Intervention*	*Control*
Clients (*n*)	235	181	37	23
Age (Years)	70.7	69.0	70.8	73.0
Range	26-98	27-94	44-88	54-89
S.D.	12.20	12.9	9.91	7.84
Gender (% Female)	58.3% (*n* = 137)	55.3% (*n* = 101)	40.5% (*n* = 15)	65.2% (*n* = 15)
Binaural 3FAHL# (dB HL)	33.6*	30.6*	33.5	32.6
Range	0-111.0	3.5-117.0	3.0-77.5	4.0-58.5
S.D.	17.54	18.28	17.92	13.07
Preferred language	English 89.8% Unknown 6.0% Mandarin 2.6% Other 1.7%	English 87.8% Other 4.4% Arabic 3.9% Unknown 2.8% Auslan 1.1%	English 100%	English 78.3% Arabic 8.7% Unknown 8.7% Hindi 4.3%
CALD (% Yes)	3.8%	10.5%	0%	17.4%
Hearing aid fitted (% of total)				
(*n*) of all clients	110 of 235	75 of 181	24 of 37	12 of 23
(%) of all clients	46.8%	40.3%	64.9%	52.2%
Top-up hearing aid chosen				
(*n*) of clients fitted	28 of 110	13 of 75	11 of 24	2 of 12
(%) of clients fitted	25.5%	17.8%	45.8%	16.7%
(%) of all clients	11.9%	7.2%	29.7%	8.7%

* $p < 0.05$ # 3FAHL = Three frequency (500 Hz, 1 kHz & 2 kHz) average hearing loss

Database details were available for all 416 clients (table 5C). Groups were matched for age, gender and their preferred language (English). More people in the control group were from a culturally and linguistically diverse (CALD) background. Clients in the intervention group had worse average binaural hearing loss (binaural 3FAHL) compared to the control group. Since both groups tested significantly for the Shapiro-Wilk statistic ($p < .000$) and failed assumptions of normality, non-parametric tests revealed a significant 3 dB difference between groups for average binaural hearing loss ($U = 18661.5$, $z = -2.144$, $p = .032$).

Table 5C also shows the postal survey subset for those who returned client surveys. 14.4% of eligible clients returned their surveys. For postal survey participants, there were no significant differences between groups for age, gender and average binaural hearing loss. No CALD client completed the client survey for the intervention group, while 17.4% of control group responses on the client surveys were from those with a CALD background.

The postal survey explored why participants attended and who was present at initial appointments. Of the 37 intervention group clients, most referred themselves ($n = 22$), by their spouse ($n = 10$), or by their general practitioner or specialist ($n = 8$). The remaining were encouraged to attend by their child/grandchild or had a previous hearing screening. Of the 23 control group clients, most self-referred ($n = 20$) with the remaining referred by their spouse, child/grandchild or their general practitioner. Most clients in both groups attended alone (31 intervention group, 18 control group) or with their spouse (4 intervention group, 5 control group). One intervention group client attended with their carer and another did not respond to this question.

5.3.2 Clinician Outcomes

5.3.2.1 Hypothesis 1a) Voice Climate Survey

The reduced eighty-two question Voice Climate Survey had six major themes and twenty-five sub-themes. Mann Whitney *U* Statistics were not significant for five major themes,

twenty-four sub-themes and seventy-eight individual questions. The remaining major theme, Passion, was rated significantly higher by the intervention group (13.84) compared to the control group (7.79), $U = 26.5$, $z = 2.000$, $p < .046$. Passion comprised of three sub-themes: organisational commitment, job satisfaction and intention to stay. Of these three sub-themes, only intention to stay was rated significantly higher by the intervention group (13.91) compared to the control group (7.64), $U = 25.5$, $z = 2.209$, $p < .027$.

Intention to stay comprised of three questions which were each rated significantly higher by the intervention group. Compared to the control group, the intervention group rated themselves significantly more likely to be working for the organisation in two years (VCS 80: 13.60 vs 7.00, $U = 21.0$, $z = -2.725$, $p < .006$), five years (VCS 81: 13.50 vs 7.21, $U = 22.50$, $z = -2.340$, $p < .019$), and see themselves as having a future within the organisation (VCS 82: 13.62 vs 8.29, $U = 30$, $z = -2.009$, $p < .045$).

The intervention group rated themselves higher (14.25) compared to the control group (6.86) for one question that was unrelated to this study's goals: that the organisation makes good use of technology (VCS 23), $U = 20.0$, $z = -2.758$, $p < .006$.

5.3.3 Financial Outcomes

5.3.3.1 Hypothesis 2a) Hearing aid uptake

Table 5C showed that a greater proportion of intervention group clients ($n = 110/235$, 46.8%) were fitted with at least one hearing aid compared to the control group ($n = 73/181$, 40.3%). This difference in hearing aid uptake was not statistically significant between groups, $\chi_2(1) = 1.741$, $p = .187$. When limited to postal survey participants, 24 of the 37 (64.9%) clients seen by the intervention group were fitted with at least one hearing aid compared to 12 of the 23 (52.2%) clients in the control group, which was also not statistically different between groups, $\chi_2(1) = .952$, $p = .329$.

5.3.3.2 Hypothesis 2b) Hearing aid return rates

Clients could report via the postal survey if they returned any trialled hearing aids to the organisation. According to postal survey responses, a pair of hearing aids was returned by one participant from each group. Hearing aid return rates could not be determined from the database, and since there was no other way apart from the postal survey to ascertain if hearing aids were returned over the data collection window, hypothesis testing could not be completed.

5.3.3.3 Hypothesis 2c) Hearing aid top-up rates

Clients fitted with hearing aids could choose to "top-up" and obtain a hearing aid with more advanced features for additional cost (i.e., not "free-to-client" hearing aids). For the intervention group, 28 of the 110 (25.5%) clients fitted with hearing aids chose to top-up compared to 13 of the 73 (17.8%) of control group clients. This meant that 11.9% of all intervention group clients chose to obtain top-up hearing aids compared to 7.2% of all control group clients. However, this difference was not statistically significant between groups, $\chi_2(1) = 1.476$, $p = .224$.

When narrowed to postal survey participants, 11 of the 24 (45.8%) intervention group clients topped-up their hearing aids compared to 2 of the 12 (16.7%) control group clients. A chi-square was attempted, but since one cell had less than 5 observations, a Fisher's exact test was conducted and obtained a one-sided difference between groups that was not statistically significant, $p = .086$.

5.3.3.4 Hypothesis 2d) Average level of hearing aid technology

Figure 5B shows that the average level of hearing aid technology chosen by clients who took up hearing aids was not normally distributed. Although the intervention group was fitted with more hearing aids at each technology level, mean ranks between the intervention group

(94.84, *n* = 110) and the control group (87.73, *n* = 73) were not significantly different, *U* = 3703.00, *z* = -1.219, *p* = .223.

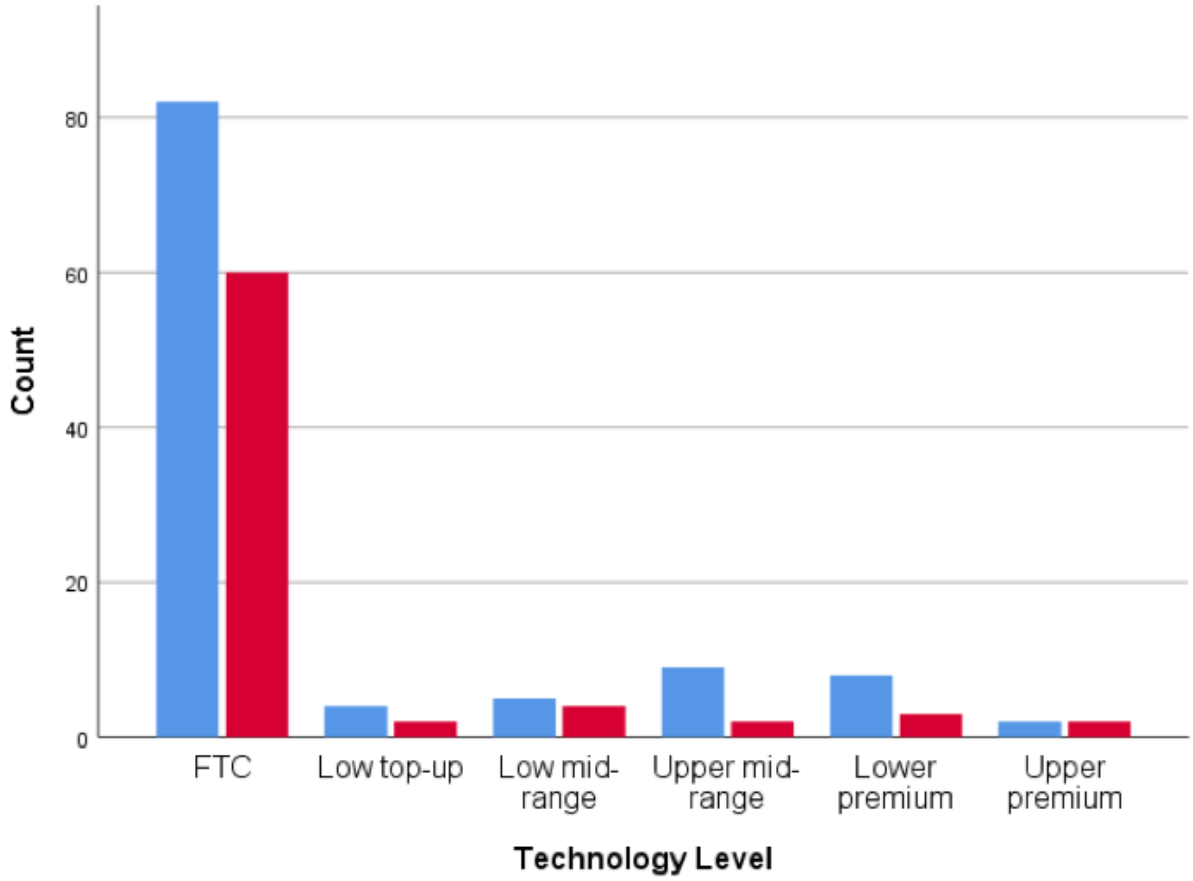


Figure 5B. Hearing aid technology level for all 100 intervention and 73 control clients fitted with at least one hearing aid. Intervention group clients marked in blue (left); control group clients in red (right).

5.3.3.5 Hypothesis 2e) Client perceived value for money

Control group clients perceived their experience with the organisation as providing greater value for money (mean rank = 32.38, *n* = 21) than intervention group clients (mean rank = 27.86, *n* = 37) on the postal survey, although this difference was not statistically significant, *U* = 449.00, *z* = 1.050, *p* = .294.

5.3.3.6 Hypothesis 2f) Number of appointments

On average, intervention group clients required more appointments (*M* = 2.19, *n* = 235) compared to the control group (*M* = 2.12, n = 181). This difference was not statistically

significant by mean ranks (intervention = 215.59, control = 200.59), U = 19836.00, z = -1.263, p = .207.

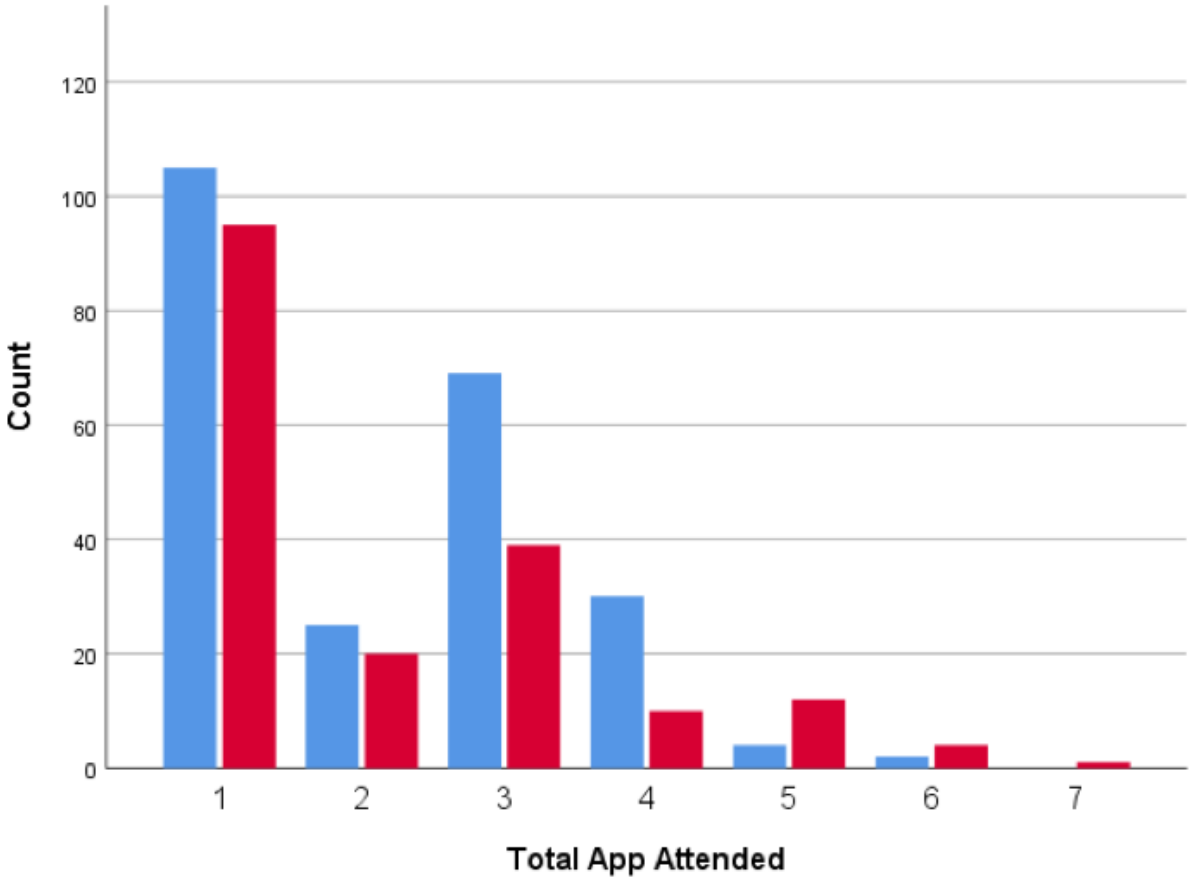


Figure 5C. Histogram of the total number of appointments attended for all 235 intervention and 181 control group clients. Intervention group clients marked in blue (left); control group clients in red (right).

The graphical display (Figure 5C) of the total number of appointments attended for intervention and control group clients reveal further observations. Firstly, most clients had either one or three appointments with their clinician. Clients who did not proceed with hearing aids only required a single hearing assessment appointment, but clients who adopted hearing aids required at least three appointments (assessment, hearing aid fitting and at least one follow-up). The database revealed that clients who had two recorded appointments generally received a telephone follow-up after their initial hearing assessment. Since more intervention group clients were fitted with hearing aids, they were likely to require more

appointments compared to the control group. However, 9.4% of control group clients attended more than four appointments (one client required seven appointments in the two-month window), compared to only 2.6% of intervention group clients. Closer inspection of the appointment data revealed that the majority of intervention group clients who required more than four appointments did so to take an ear impression prior to hearing aid fitting, while control group clients who required more than four appointments conducted more telephone follow-ups prior to hearing aid fitting. Other reasons for requiring more than four appointments was for more follow-ups post-fitting or to trial a different hearing aid.

5.3.3.7 Hypothesis 2g) Net Promoter Score

Control group clients were more likely to recommend the clinic for their initial appointment (M = 9.14, n = 21) than the intervention group (M = 8.50, n = 36), although this difference was not statistically significant, U = 423.50, z = .819, p = .413. Control group clients were also more likely to recommend hearing aids (M = 7.75, n = 8) compared to the intervention group (M = 7.00, n = 16), although this difference was also not statistically significant, U = 73.50, z = .592, p = .554.

The Net Promoter Score (NPS) is a vector calculated for each group by subtracting the proportion of detractors (number of clients who rated between zero and six) from promoters (clients who rated nine and ten). The control group had a higher NPS (66.67, n = 21) for their first clinic attended compared to the intervention group (47.22, n = 36), a difference of 19.45. Regarding hearing aids, the control group also obtained a higher NPS of 12.50 (n = 8) compared to the intervention group's negative score of -18.75 (n = 16), demonstrating a much larger difference of 31.25. The way that the NPS is calculated prevents univariate testing in SPSS, but results suggest that control group clients had a greater proportion of promoters to detractors compared to the intervention group for the clinic and for hearing aids. Furthermore, the majority of intervention group clients were detractors of

hearing aids rather than promoters of hearing aids. The small respondent sample for both questions need to be considered in the interpretation of these results: the distributions for clients recommending hearing aids (Figure 5D) and the clinic (Figure 5E) show that several intervention group clients provided perfect ratings (10) but had a greater spread in detractor scores compared to the control group.

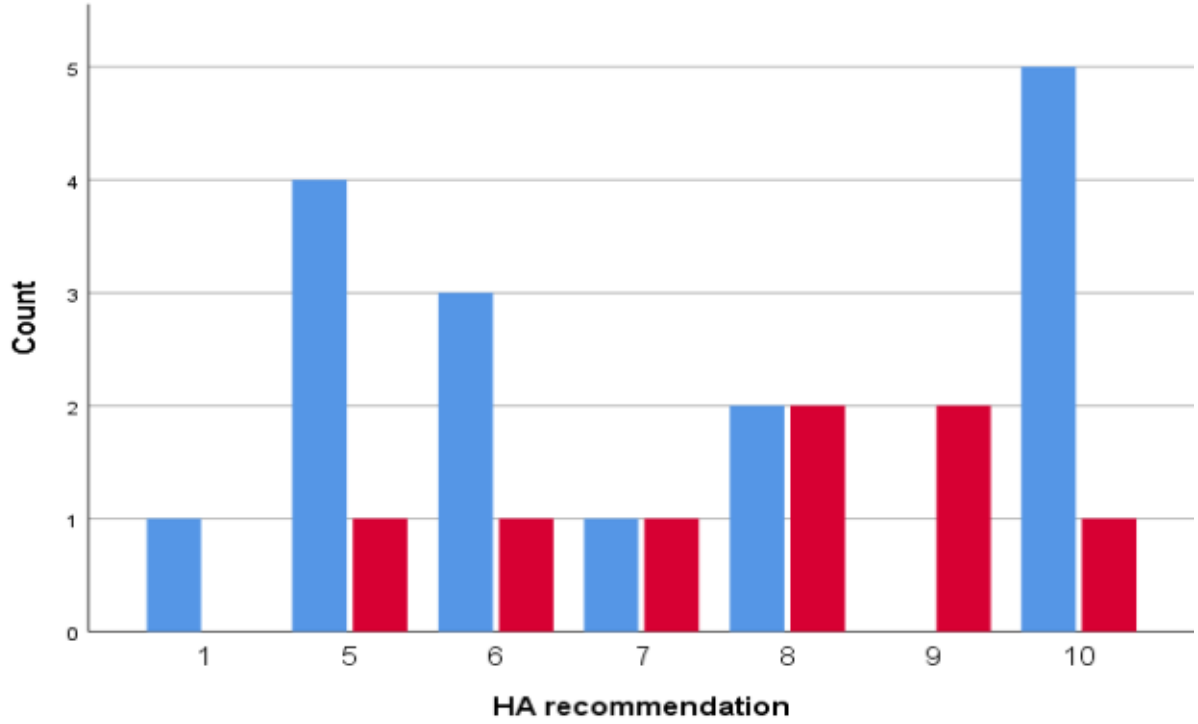


Figure 5D. How likely the sixteen intervention and eight control group clients are to recommend hearing aids to family and friends. Intervention group clients marked in blue (left); control group clients in red (right).

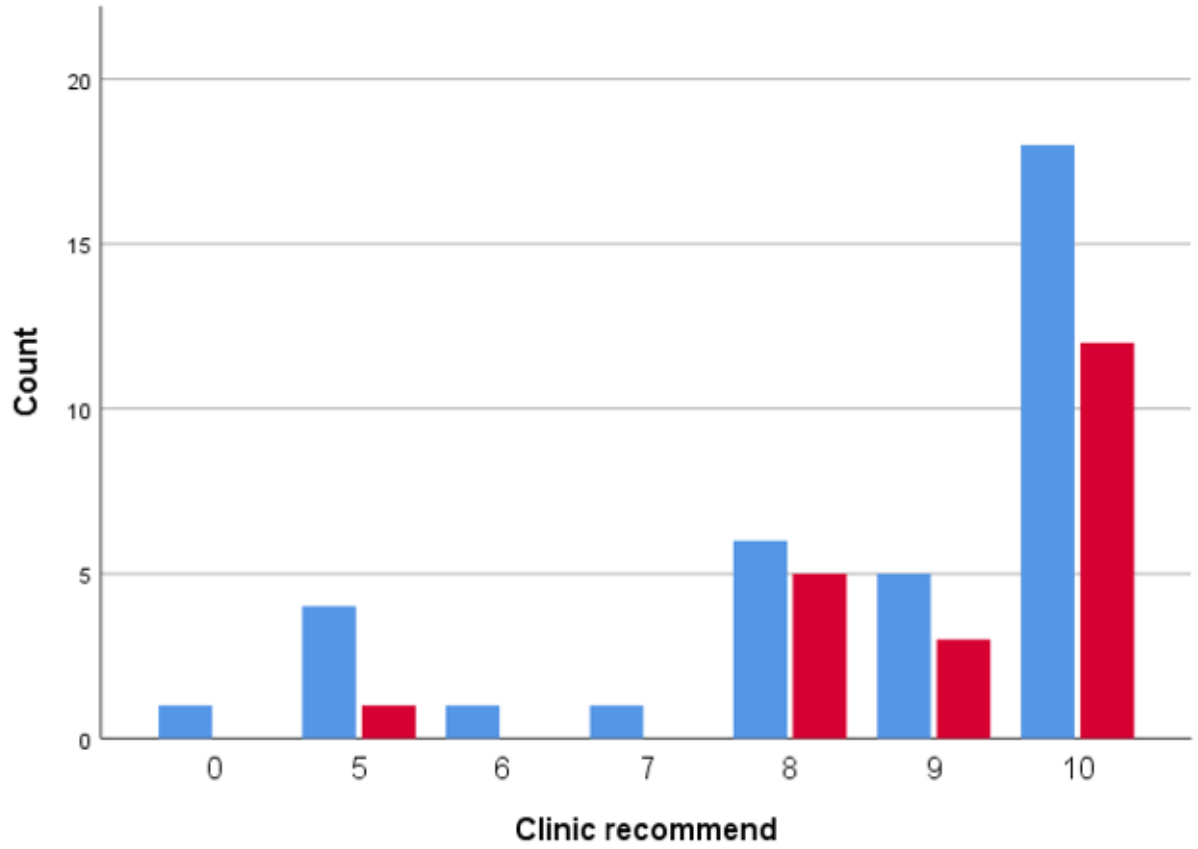


Figure 5E. How likely the 36 intervention and 21 control group clients are to recommend the initial clinic attended to family and friends. Intervention group clients marked in blue (left); control group clients in red (right).

5.3.3.8 Hypothesis 2h) Adherence to clinician recommendations

When considered across all clinician recommendations, 23 of 27 (85.2%) intervention group clients followed their audiologist's recommendations, compared to 13 of 20 (65%) control group clients. Fisher's Exact test found no statistically significant one-sided difference between groups, $p = .103$. When limited to recommendations of hearings aids, 26 of 27 (96.3%) intervention group clients who were recommended hearing aids adhered to the audiologist's recommendations, compared to 15 of 20 (75%) in the control group. A Fisher's Exact test was conducted between hearing aid adherence and each group, finding a statistically significant one-sided result of $p = .043$, indicating that the association between each group and client adherence to hearing aid recommendations was skewed positively in

the direction of the intervention group. There was a moderately strong association between hearing aid adherence and each group, φ = 0.316, *p* = .031.

To better understand client adherence, clients were asked who helped them to decide which recommendation(s) to pursue. Participants were allowed to provide multiple responses. For the intervention group (*n* = 26), fifteen participants chose to follow their clinician's recommendations by themselves, while six involved their spouse, four involved their child/grandchild, three involved their doctor, and one each involved their carer and the Department of Veteran Affairs (DVA). For the control group (*n* = 20), 13 participants decided by themselves, while four involved their spouse, three their doctor, and one each their child/grandchild, friend or carer.

5.3.4 Client Outcomes

5.3.4.1 Hypothesis 3a) Hearing aid benefit

Hearing aid benefit was evaluated through the HAUQ and IOI-HA. The HAUQ explores hearing aid benefits across six ordinal questions exploring hearing aid benefit with the family, in small groups, at meetings, at social activities, with the TV/radio and with the telephone. Of the six categories, a significant difference was found between groups for hearing aid benefit for social activities, with the intervention group obtaining a better score (12.00, *n* = 12) compared to the control group (6.57, *n* = 7), *U* = 18.00, *z* = -2.207, *p* <.027. The second question of the IOI-HA asked how the hearing aid had helped the client in the situation they had most wanted to hear better in the past two weeks. The control group (mean rank = 15.00, *n* = 7) scored higher than the intervention group (12.95, *n* = 19) for this question, but this difference was not statistically significant, *U* = 77.00, *z* = .640, *p* = .522.

5.3.4.2 Hypothesis 3b) Hearing aid difficulties

The HAUQ asked clients seven dichotomous (yes/no) questions about hearing aid difficulties concerning hearing aid insertion and removal, adjusting hearing aid controls, audibility of

hearing aid feedback, hearing aid/earmould discomfort, tolerability of sudden loud noises, hollowness or echo of the user's own voice and if others have helped to adjust the hearing aid. Fisher's exact test was used to compare the intervention and control groups for each of these seven difficulties, but no one- or two-sided significance differences were found.

5.3.4.3 Hypothesis 3c) Hearing aid use

Postal survey participants who retained their hearing aids were asked about hearing aid use. Intervention group clients had a higher mean rank (15.61, n = 19) compared to control group clients (10.19, n = 8) for client-reported levels of hearing aid use, although this difference was not statistically significant, U = 45.00, z = -1.666, p <.096. Figure 5F shows that most intervention group clients reported wearing their hearing aids daily for one or more hours daily, with none of the respondents reporting non-use. Control group clients had a greater spread, with some respondents reporting non-use and others reporting daily use greater than one hour.

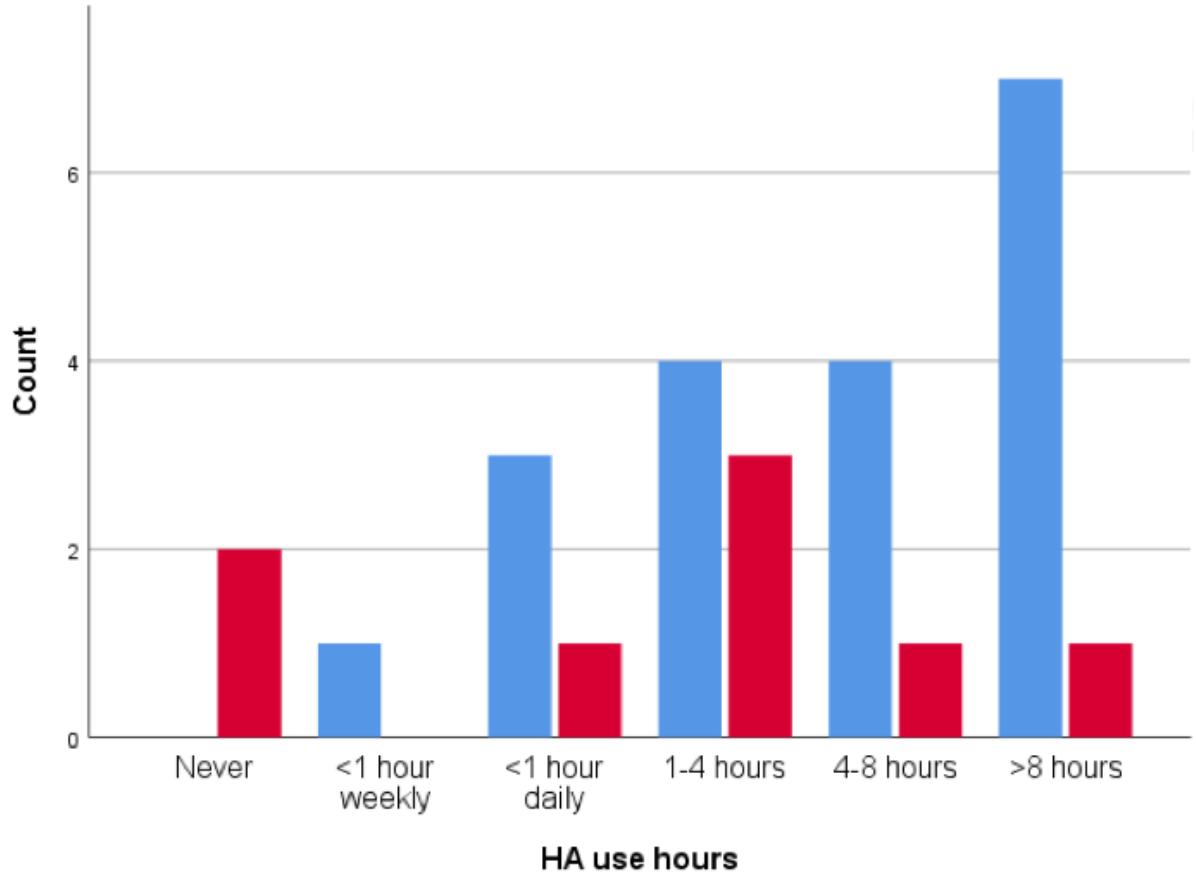


Figure 5F. Self-reported hearing aid usage for nineteen intervention and eight control group clients. Intervention group clients marked in blue (left); control group clients in red (right).

5.3.4.4 Hypothesis 3d) Client satisfaction with their clinician

Clients rated how satisfied they were with the intern seen on their first appointment with the organisation. The intervention group had a higher mean rank (30.75, $n = 36$) compared to the control group (27.45, $n = 22$), but this difference was not statistically significant, $U = 351.00$, $z = .831$, $p = .406$.

5.3.4.5 Hypothesis 3e) Client satisfaction with the clinic

Clients rated how satisfied they were with the first clinic they had attended, and the intervention group had a slightly higher mean rank (30.50, $n = 36$) compared to the control group (27.86, $n = 22$), but this difference was not statistically significant, $U = 360.00$, $z = .654$, $p = .513$.

5.3.4.6 Hypothesis 3f) Client satisfaction with hearing aids

Clients rated how satisfied they were with their hearing aids, and the intervention group had a slightly higher mean rank (13.09, $n = 16$) compared to the control group (11.31, $n = 8$), but this difference was not statistically significant, $U = 54.50$, $z = -.606$, $p = .545$.

5.3.4.7 Hypothesis 3g) Client-rated Quality of Life

There were no statistically significant differences between groups for quality of life measures as measured by IOI-HA questions three (residual activity limitations), five (residual participation restrictions), six (impact on others) and seven (overall quality of life). Mean ranks for residual activity limitations were higher for the control group (13.92, $n = 6$) compared to the intervention group (12.71, $n = 19$), $U = 62.50$, $z = .376$, $p = .707$. A similar pattern was observed for residual participation restrictions, with the control group (14.07, $n = 7$) scoring higher than the intervention group (13.29, $n = 19$), $U = 70.50$, $z = .256$, $p = .798$. The control group reported reduced impact on others (14.29, $n = 7$) compared to the

intervention group (13.21 n = 19), U = 72.00, z = .350, p = .726. Finally, the control group had a slightly higher mean rank (13.64, n = 7) compared to the intervention group (13.45, n = 19) for overall quality of life ratings, but this difference was not statistically significant, U = 67.50, z = .060, p = .952.

5.3.5 Person-Centred Care Evaluation Measures

5.3.5.1 Hypothesis 4a) Jefferson Scale of Empathy (JSE)

The JSE explored clinician self-ratings of their own empathy across twenty questions. Each group had higher scores on individual JSE questions. The Mann-Whitney U test found no significant differences between groups for each of the twenty questions. An independent-samples t-test was run to determine if there were differences in JSE total scores between the sixteen intervention and eight control interns who completed the JSE. There were no outliers in the data, as assessed by inspection of a boxplot and histogram. JSE total scores for each group of interns were normally distributed, as assessed by Shapiro-Wilk's test (p > .05), and there was homogeneity of variances, as assessed by Levene's test for equality of variances (p = .230). Self-rated JSE total scores were higher among control group interns (M = 121.38, SD = 7.726) than the intervention group interns (M = 116.06, SD = 9.692), but this difference was not statistically significant, M = -5.312, 95% CI [-13.50, 2.87], t(22) = -1.346, p = .192.

5.3.5.2 Hypothesis 4b) Patient-Practitioner Orientation Scale (PPOS)

The eighteen-question PPOS aimed to assess clinician preferences for person-centred care. For individual questions, the Mann-Whitney U test was not significant between groups except for the reverse-scored fifth question exploring if *"clients should rely on the audiologist's knowledge and not try to find out about their conditions on their own"* – greater disagreement with this statement indicated more person-centredness. For the fifth PPOS question, scores for control group interns (mean rank = 17.13) were statistically significantly

higher than for the intervention group interns (mean rank = 10.19), $U = 101$, $z = 2.406$, $p = .016$, indicating a stronger preference for person-centredness by the control group on this question.

The eighteen PPOS questions can also be assessed as two nine-question subscales (Caring and Sharing) or through a combined score. An independent-samples t-test was run to determine if there were statistically significant differences in subscale and combined scores between the sixteen intervention and seven control interns who completed the PPOS. There were no outliers in the data, as assessed by inspection of a boxplot. Mean subscale and combined scores for each group of interns were normally distributed, as assessed by Shapiro-Wilk's test ($p > .05$). There was homogeneity of variances as assessed by Levene's test for equality of variances (Caring $p = .230$; Sharing $p = .561$; Combined $p = .514$). Mean caring subscale scores were higher among control group interns ($M = 4.92$, $SD = .389$) compared to intervention group interns ($M = 4.74$, $SD = .367$), but this was not a statistically significant difference, $M = -.185$, 95% CI [-.536, .167], $t(21) = -1.090$, $p = .288$. Similarly, mean sharing subscale scores were higher among control group interns ($M = 4.54$, $SD = .297$) than the intervention group interns ($M = 4.49$, $SD = .391$) but not significantly different, $M = -.047$, 95% CI [-.392, .299], $t(21) = -.281$, $p = .782$. Finally, the mean combined PPOS score was higher for control group interns ($M = 4.71$, $SD = .312$) compared to intervention group interns ($M = 4.61$, $SD = .335$) but this difference was also not statistically significant, $M = -.116$, 95% CI [-.425, .194], $t(21) = -.777$, $p = .446$.

5.3.5.3 Hypothesis 4c) Jefferson Scale of Patient Perceptions of Physician Empathy (JSPPPE)

The JSPPPE explored client ratings of clinician empathy across five questions. Although mean ranks were higher for the intervention group ($n = 16$) compared to the control group (n

= 7) for four out of the five questions, differences in mean ranks for all five questions were not statistically significant according to the Mann Whitney *U* test.

5.3.5.4 Hypothesis 4d) Measure of Process of Care for Adults (MPOC-A)

None of the thirty-four MPOC-A questions were found to have a statistically significant difference between groups according the Mann Whitney *U* test, with the intervention and control group each scoring higher on different questions. This survey was poorly completed: several participants skipped questions or marked questions as not applicable. One participant potentially summed up why the MPOC-A was poorly completed by marking additional feedback on the MPOC-A survey: "*Did someone do a PhD in ambiguity?*"

5.3.5.5 Hypothesis 4e) Partners in Health (PIH)

Clients with self-reported hearing loss or hearing difficulty were asked to complete the eleven-question PIH scale to indicate their perception of the level of shared decision-making present in the clinical encounter. Both groups had higher average scores on some of the eleven questions, but none of these differences were statistically significant according to the Mann Whitney *U* test.

5.4 Discussion of phase two results

5.4.1 Key Findings

The aim of the present chapter was to evaluate the organisational-valued outcomes of a person-centred care intervention in a hearing rehabilitation organisation setting. Specifically, this chapter evaluated a psychosocial communication intervention delivered to graduate intern audiologists in a non-randomised cohort comparison trial on person-centred care evaluation measures and organisational-valued client, clinician and financial outcomes identified from the first phase. This pilot study addressed a major gap in research by identifying the organisational-valued outcomes of a person-centred care intervention (Grenness *et al.*, 2014a). Table 5D summarises the statistically significant findings for this

cohort comparison study. Although most of the findings in this chapter were not statistically significant, results may be clinically relevant and promising for senior managers of hearing rehabilitation organisations even after factoring for non-randomisation of clinicians and underpowered client-reported surveys: relatively more devices with higher levels of technology were adopted by intervention group clients for fewer total appointments. However, the average hearing loss was also significantly worse across intervention group clients. Non-significant results also suggest that the psychosocial communication intervention did not worsen organisational performance. Non-significant results also suggest that the psychosocial communication intervention did not worsen organisational performance.

Table 5D. *Summary of statistically significant findings for the cohort comparison study**

Outcome	Intervention Group	Control Group
Clinician	1a) VCS: Passion 1a) VCS: Intention to Stay 1a) VCS: Use of technology	
Financial	2h) Adherence to hearing aid recommendations	
Client	3a) HAUQ: Hearing aid benefit in social situations	2g) Net Promoter Score for hearing aids 2g) Net Promoter Score for recommending the clinic
Person-centred care evaluation measures		4b) PPOS: Clients should rely on audiologist's knowledge

* $p < 0.05$

Clinician outcomes on the Voice Climate Survey (Langford, 2009) favoured intervention group interns. Under the train-the-trainer intervention design, intervention group interns received psychosocial communication support from their supervisors and in turn were

trained to address clients' psychosocial needs. The train-the-trainer design may further explain why intervention group interns rated their intention to stay with the organisation with the organisation significantly higher than control group interns (hypothesis 1a). Clinician retention would reduce the cost of recruiting and training replacement clinicians for the organisation (Charmel & Frampton, 2008). Intern audiologists can be considered to be a costly initial investment for the organisation despite their lower ages because of their lower output under supervision. Interns are supervised by more experienced clinicians who are unable to service clients and generate revenue for the organisation while supervising interns. However, when an intern is fully trained in the organisation's procedures and can practice independently, it would be then be more cost-effective to retain them rather than to hire someone new.

The database and client surveys did not find significant differences between groups for financial outcomes, which was in itself pertinent that the psychosocial communication intervention did not negatively affect organisational performance across a range of client, clinician and financial measures. Other findings were likely to be clinically relevant. Intervention group interns generated more revenue for the organisation by having higher rates of hearing aid uptake (hypothesis 2a), a greater proportion of hearing aid "top-ups" (hypothesis 2b), and since their clients choosing higher and more expensive hearing aid technology levels (hypothesis 2c). The intervention group also had significantly better client adherence to clinician recommendations of hearing aids (hypothesis 2h) compared to the control group. Hearing aid return rates could not be calculated from the data (hypothesis 2b). Intervention group clients needed slightly more appointments on average (hypothesis 2f) compared to the control group but this may have been due to the greater number of hearing aids fitted to the intervention group's clients and subsequent follow-ups. On closer scrutiny, a larger percentage of control group clients required more than four appointments in the two-

month data collection window compared to the intervention group, which suggests that the intervention may be associated with a reduction in total number of appointments. Overall, database results suggest that person-centred care (in the form of psychosocial communication) may be associated with increased profitability through increased hearing aid uptake for similar operational costs, consistent with the expectations of previous research (Singh & Launer, 2016; Singh *et al.*, 2016; Grenness *et al.*, 2014a). Besides better clinician retention, hearing rehabilitation organisations could potentially benefit financially from providing psychosocial communication training for their clinicians and should pursue clinical validation of these results.

Client outcomes describing the client experience revealed mixed results. There was no difference between groups for perceived value for money (hypothesis 2e). However, intervention group clients had greater average device spend, so the lack of difference may be considered positive for the hearing rehabilitation organisation. Hearing aid use (hypothesis 3c) and satisfaction levels with the clinician (hypothesis 3d), clinic (hypothesis 3e) and hearing aids (hypothesis 3f) were higher for intervention group clients, but control group clients were more likely to recommend hearing aids and the clinic. Consequently, control group clients reported higher Net Promoter Scores (NPS) for the clinic and for hearing aids (hypothesis 2g). The intervention group had a negative NPS score for hearing aids, suggesting that the majority of clients who saw them were considered detractors of hearing aids just two months after their initial appointment. Detractors are predicted to share their negative experience with the organisation with their friends and family (Rechheld, 2003), which is damaging for the organisation. This study showed that satisfaction and Net Promoter Scores did not follow a linear relationship, and that caution should be applied when using either measure to attempt to understand client experiences or to predict client loyalty to the organisation (Kupfer & Bond, 2012; Krol *et al.*, 2014; Zaki *et al.*, 2016). Qualitative and

quantitative tools that better describe client experience of care beyond satisfaction or NPS measures but still meet senior management criteria are still needed within the hearing rehabilitation context.

There was one significant difference between groups pertaining to hearing aid performance – that the intervention group clients found more benefit in noise compared to the control group (hypothesis 3a). Self-reported hearing aid use (hypothesis 3c) was higher in the intervention group but this difference was not statistically significant. There were no statistically significant differences between groups for reported hearing aid difficulties (hypothesis 3b) or quality of life (hypothesis 3g). Combined with the increased likelihood of hearing aid uptake, further and more rigorous research is needed to validate if psychosocial communication can increase hearing aid uptake, use and benefit for clients, which can reduce the deleterious effects of hearing loss described in the literature review.

There were no significant differences in overall scores between groups across the two clinician self-rated (JSE and PPOS) and three client-rated person-centred care evaluation measures (JSPPPE, MPOC-A and PIH) (Hypotheses 4a to 4e). Client-completed surveys were poorly completed and were a limitation of this study. A significant difference was found in favour of the control group interns on only one question from the PPOS. Scores on the clinician-completed PPOS for both groups were comparable to a scores of experienced audiologists from a previous Australian study (Laplante-Lévesque, Hickson & Grenness, 2014) and indicated that participating clinicians preferred person-centred behaviours (Manchaiah *et al.*, 2014). However, higher clinician-rated scores do not necessarily indicate greater person-centredness. This suggests that clinician-completed surveys are more useful if they can be matched to clinical practice (Ali, Meyer & Hickson, 2018), client preferences for person-centred care (Manchaiah *et al.*, 2017) or clinical outcomes (Laplante-Lévesque, Hickson & Grenness, 2014; Manchaiah *et al.*, 2014) in a future study.

5.4.2 Strengths and Limitations

This study provided a novel approach for evaluating the effectiveness of person-centred care interventions within hearing rehabilitation. Data collected via surveys and the database were used to explore client, financial and clinician outcomes in a large hearing rehabilitation organisation.

The major limitation of this pilot study was the small and non-randomised groups of interns which made it difficult to compare outcomes between groups and affected the overall interpretability of results within this pilot study. Non-randomisation of the data limited data analyses to between group comparisons and negated the use of logistic regression to identify explanatory variables. Organisational constraints meant that interns were stratified by region to preserve the integrity of the intervention; however, this limited the number of available interns for the intervention group to sixteen. Due to the nature of the intervention, intervention group interns were extensively supported and consequently chose to participate. While control group interns were encouraged by the organisation to participate, it was considered a non-compulsory work activity, and only eleven of thirty-three potential control group interns completed at least one survey (VCS, JSE or PPOS) to be eligible for inclusion and analysis. Some researchers recognise that randomisation is not always possible for hearing rehabilitation research, but results are still able to provide evidence for clinical guidelines (Ismail *et al.*, 2019). Despite non-randomisation, intern demographics showed that participants from both groups were largely matched by age, gender, ethnicity and qualification, although the average hearing loss was worse in the intervention group, potentially affecting the interpretation of this study's findings (table 5B). The small sample of interns did not affect collection of client appointment data (n = 416) for assessing financial outcomes.

Client postal surveys were used to assess client outcomes, but only 14.4% (n = 60) of eligible clients returned a useable survey meaning that postal survey findings could not be easily generalised across all clients. Our figure was below the 20% return rate reported by a senior manager participant from phase one (see section *4.3.3.1*). The poor postal response rate may be due to several reasons. Firstly, the survey was originally designed for online distribution and contained strategies to facilitate completion, such as adaptive questions and built-in reminders. Privacy constraints faced by the organisation altered the online survey into a postal format, which meant that postal reminders were not possible due to increased cost for the research team. Converting the survey into a postal format required more rigorous consideration of the readability needs of older clients (e.g., Douglas & Kelly-Campbell, 2018), resulting in a printed survey close to thirty pages long. The extensive postal survey prevented collection of potentially useful client demographic data. For example, we explored clients' age, gender and hearing loss; but were unable to account for education, previous income levels, culture or other demographic variables that have been previously associated with hearing device uptake and use (Ng & Loke, 2015; Williams *et al.*, 2009; Zhao *et al.*, 2015). Clients who adopted and used hearing aids had to complete the most questions in the printed survey and likely lost interest. The long survey without the use of reminders were therefore likely to have contributed to poor survey completion.

This study intended to link person-centred care outcomes with organisational-valued outcomes, however none of the person-centred care evaluation measures were sensitive enough to capture differences between groups in a meaningful way. Limitations of chosen person-centred care evaluation measures were only discovered during data collection and analysis. In particular, client-completed PIH and MPOC-A measures were greatly affected by missing responses as some questions were optional. In particular, the MPOC-A is not recommended for future research, as the questions were found to be confusing based on client

comments and were largely left blank on return. Clinician-rated person-centred care evaluation measures could not be meaningfully correlated with client or financial outcomes due to issues arising from small sample size and non-randomisation.

The lack of differences between groups on person-centred care evaluation measures raises the question if the intervention was ineffective. The intervention's effectiveness was evaluated through qualitative interviews ascertaining intern-supervisor feedback on the intervention's effectiveness and self-reported behaviour change as part of the broader research project (Barr *et al.*, in preparation). Moreover, the multi-arm intervention was delivered with fidelity to the intervention group. Therefore, the intervention was adjudged to have been successfully delivered, and clinician feedback testified to its effectiveness. Despite the intervention's likely effectiveness, observed group differences was still likely to have been affected by the non-randomisation of interns.

Finally, the large number of hypotheses assessed through univariate testing may have increased the chance of Type I errors. Corrections to the accepted *p* value, such as the Bonferroni correction, are commonly used statistical procedures to control for Type I errors when multiple hypotheses are simultaneously tested (Perneger, 1998). In this study, for example, the intervention group rated their organisation's use of technology significantly more favourably than the control group, which may be an irrelevant finding or a false positive result. The Bonferroni and other family-wise error corrections were not applied to this research for several reasons. First, such corrections attempt to reduce the chance of Type I error while concurrently raising the chance of Type II errors (Perneger, 1998). For example, if the Bonferroni correction was applied to this study to reduce Type I errors, the accepted *alpha* level for the twenty-one hypotheses become 0.0024, rendering all hypotheses statistically non-significant, which is likely to reflect a Type II error instead. Secondly, this research does not claim that all hypotheses must always hold simultaneously true. Our

findings do not imply that in repeated trials that the intervention group will always have the same variables – clinician intention to stay, hearing aid benefit, average device revenue – concurrently better than the control group. Alternative test procedures to control for simultaneous hypotheses testing rely heavily on Bayesian distributions (Perneger, 1998), but most of the variables in this study did not have Bayesian distributions owing to the audiological surveys chosen. This pilot research was ultimately exploratory in nature, and significant results in the presence of small sample sizes (specifically, the number of participating clinicians and returned postal surveys) merely indicate a potential relationship which needs further confirmation in larger and more controlled studies.

5.4.3 Future Research

The limitations of this study point towards an overarching solution – that a more comprehensive study, ideally randomised and controlled, could explore the outcomes of person-centred care for a greater range of clinicians over a longer period of time. Future studies may also explore one of the many other aspects of person-centred care described in the literature review, while a longitudinal study may better determine the intervention's long-term effects and sustainability of outcomes. Experienced clinicians would have provided a baseline level of performance and outcomes that could be compared pre- and post-intervention. Beyond the single organisation, a subsequent study comparing clients and clinicians across several organisations may also provide new insights into improving person-centred care within hearing rehabilitation. In the assessment of patient-centred care as applied to the hearing-impaired population, it is important to note that the population is in fact non-homegenous. In particular, the degree and type of hearing loss can be used to segment the population into different groupings, which may not reflect the type of person-centred care required or its mode of implementation. For example, the psychosocial drivers for a 35 year-old adult with mild to moderate hearing loss from industrial or recreational noise would likely

be different to those of an octogenarian with a severe-to-profound age-related hearing loss. However, given that our analysis was within only one organisation, it was felt that a segmental analysis was beyond the scope of this thesis. Demographic variables such as average hearing loss levels, location, income and educational level should be factored into statistical modelling if possible in subsequent research.

This study confirms that research is urgently needed to develop person-centred care evaluation measures that are suitable for clinical use. Client-completed person-centred care evaluation surveys in this study were poorly completed. Clinically suitable person-centred evaluation measures must be applicable to adopters and non-adopters of hearing aids, and for clients who attend one or more appointments. To maintain a person-centred approach, developed instruments should allow the client (and their communication partners) to express which aspects of person-centred care are indeed important to them before evaluating how well these aspects were delivered. The rigorous new instrument for evaluating person-centred care would then need to be validated against intervention outcomes clinical practice (Ali, Meyer & Hickson, 2018) or organisational requirements (Laplante-Lévesque, Hickson & Grenness, 2014).

5.5 Conclusion

This pilot study addressed a major gap in research by evaluating organisational-valued outcomes of a person-centred care intervention. Intervention group interns reported significantly greater intention to stay with the organisation. Intervention group clients adhered significantly more to clinician recommendations of hearing aids and reported greater benefit with hearing aids in social situations. Control group clients were significantly more likely to recommend hearing aids and the clinic to friends and family (based on Net Promoter Scores). PCC evaluation measures did not reveal significant overall differences between groups. Results are promising for the hearing rehabilitation organisation even after factoring

for non-randomisation of clinicians and underpowered client-reported surveys. For example, non-significant results may be clinically relevant as device technology levels and uptake were higher for the intervention group for fewer total appointments. Further research is needed to develop and validate clinically suitable person-centred care evaluation measures against the same organisational-valued outcomes in a more rigorous and suitably powered randomised-control study design. Key findings from the qualitative (chapter four) and quantitative (chapter five) phases towards the overall thesis aims are discussed in the next chapter, as well as its contribution to the literature and its broader implications.

6 General Discussion

The overall aim of this thesis was to provide an evidence base for a top-down approach to the implementation of person-centred care within the Australian hearing rehabilitation context. An exploratory sequential mixed-methods research design was chosen to answer the four specific research aims identified from the literature review (chapter two). Key findings pertaining to the specific aims are discussed below. Figure 6A summarises the exploratory sequential mixed-methods research design including the sub-methods used, participant samples and data analyses approaches employed for the qualitative first phase (chapter four) and the quantitative second phase (chapter five). This concluding chapter will discuss the key overall findings of this thesis, its contribution to the literature and its broader implications.

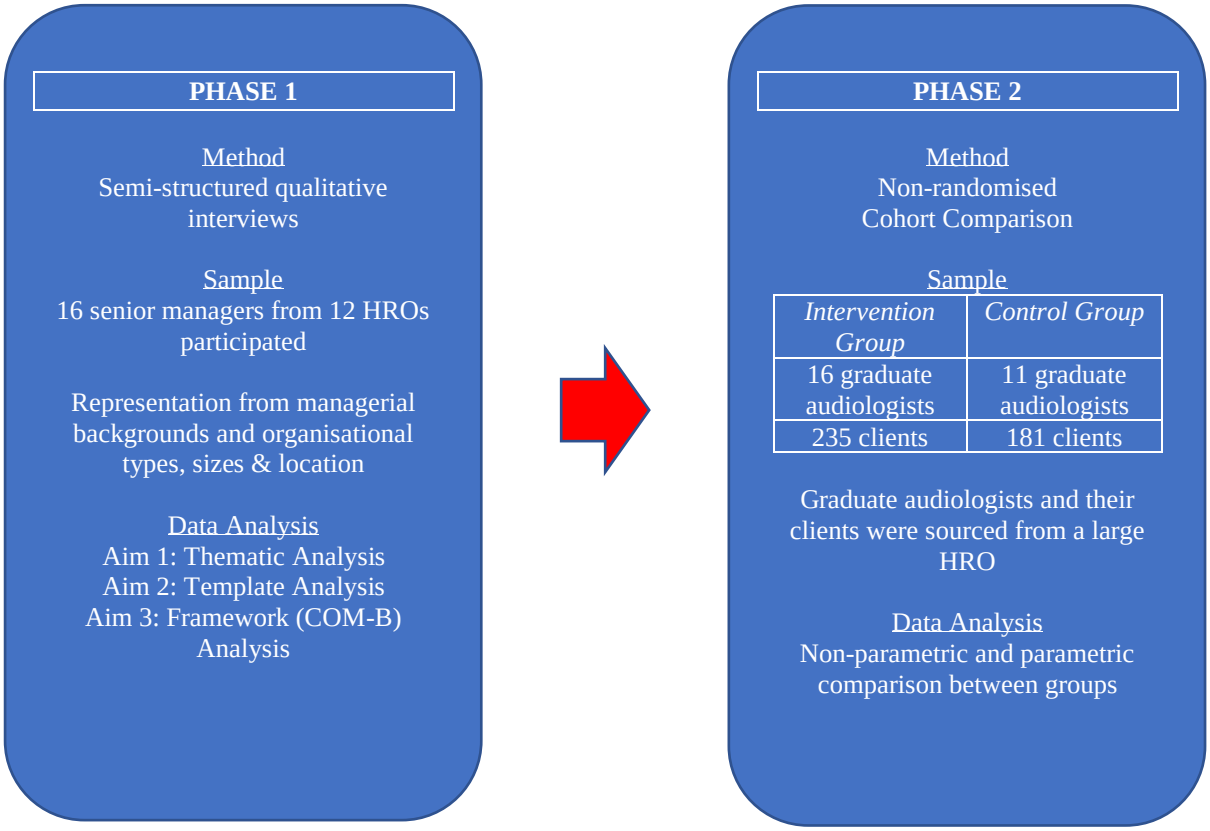


Figure 6A. Exploratory sequential mixed-methods design containing the sub-methods, participant samples and data analyses approaches employed.

6.1 Key Findings

The qualitative first phase of this thesis used semi-structured interviews to address the first three specific aims of this research, which were to: i) investigate how senior managers of hearing rehabilitation organisations in Australia define and evaluate success; ii) investigate how senior managers of hearing rehabilitation organisations define and evaluate person-centred care; and iii) identify the perceived facilitators of and barriers to person-centred care evaluation according to senior managers of hearing rehabilitation organisations in Australia, in the context of behavior change theory (i.e., the COM-B model). Senior managers defined their core success as the interplay of client success and financial success. The organisation had to achieve both client success and financial success to achieve "double bottom line" success. Broader themes that influenced the definition and evaluation of success included staff factors, the participating manager's role, and the organisation's ethos, mission and vision. Although financial success was considered a result of client success, it was evaluated more rigorously across all clients compared to client success, with client success assessed primarily in clients who adopted hearing aids.

Senior managers defined person-centred care well as a group and recognised that person-centred was critical for client success. Non-delivery of person-centred care would negatively impact financial success. However, person-centred care was not directly evaluated in nearly all hearing rehabilitation organisations. Nevertheless, senior managers believed that they were already providing person-centred care based on alternative evaluation measures that indicated client and financial success. Senior managers' psychological capability (knowledge of suitable tools), physical opportunity (time) and social opportunity (staff support) were barriers to evaluating person-centred care, but the major barrier was reflective motivation which included senior managers' beliefs about the person-centredness of their clinicians and clinical processes and the absence of consequences for not evaluating person-

centred care. Senior managers reported that they had the physical opportunity (money) to implement person-centred care evaluation if there was a suitable, efficient, effective and clinically validated tool available for evaluating person-centred care.

The quantitative second phase utilised first phase findings to address the fourth research aim to evaluate the organisational-valued outcomes of a person-centred care intervention in a hearing rehabilitation organisation setting. Specifically, we evaluated a psychosocial communication intervention delivered to graduate intern audiologists in a non-randomised cohort comparison trial on person-centred care evaluation measures and organisational-valued client, clinician and financial outcomes identified from the first phase. Intervention group interns reported significantly greater intention to stay with the organisation. Intervention group clients adhered significantly more to clinician recommendations of hearing aids and reported greater benefit with hearing aids in social situations. Control group clients were significantly more likely to recommend hearing aids and the clinic to friends and family based on their Net Promoter Scores. Client- and clinician-reported person-centred care evaluation tools were incorporated in an attempt to clinically validate such measures against clinical practice (Ali, Meyer & Hickson, 2018) and organisational requirements (Laplante-Lévesque, Hickson & Grenness, 2014) but were unsuccessful due to small participant responses, and PCC evaluation measures did not reveal significant overall differences between groups. Non-significant results suggest that the psychosocial communication intervention did not worsen organisational performance and may be clinically relevant as relatively more devices with higher levels of technology were adopted by intervention group clients for fewer total appointments. Findings suggest overall benefits to the hearing rehabilitation organisation across senior manager valued outcomes.

6.2 Contribution to the literature

This thesis had several findings that contribute to the academic literature. Although others had previously described tools for evaluating organisational client and financial success in hearing rehabilitation organisations (e.g., Kasewurm, 2016; Taylor, 2016), little was known about which of these tools were valued and implemented across different organisational types within the Australian context. Moreover, although person-centred behaviours were expected to be promising for the hearing rehabilitation organisation (e.g., Grenness *et al.*, 2014a; Singh & Launer, 2016; Singh *et al.*, 2016; Vuorialho, Karinen & Sorri, 2006), the role of person-centred care in organisational success was not well investigated. Chapter four provided an in-depth investigation in these areas across various organisational types within the Australian context – the first of its kind. By exploring how senior managers defined and evaluated their success, the reasons and choice of various evaluation measures could be better understood in a meaningful way. The importance of person-centred care in organisational success was confirmed by this thesis, however it also revealed that person-centred care was rarely directly evaluated. Findings from the COM-B model can be used to inform evidence-based approaches (such as the Behaviour Change Wheel) for identifying suitable interventions for the implementation of person-centred care evaluation in hearing rehabilitation organisations (Barker, Atkins & de Lusignan, 2016; Coulson *et al.*, 2016; Michie, Atkins & West, 2014; Wong & Hickson, 2012).

This thesis's findings were also distributed to the worldwide audiology profession through practical means. A selection of chapter four's preliminary findings was published in the open-access Hearing Journal in February 2019 (William *et al.*, 2019)[12]. Publishing in the Hearing Journal allowed for international diffusion of this thesis's research to a global

12 As at January 2020, the article was located here: https://journals.lww.com/thehearingjournal/Fulltext/2019/02000/Are_You_Providing_Person_Centered_Hearing_Care_.6.aspx

audience. Furthermore, presentations were made at national (Australia) and international (USA, South Africa and New Zealand) audiology conferences to deliver findings to audiologists worldwide.

The second phase was a novel evaluation of a person-centred hearing rehabilitation outcomes intervention using organisational-valued client, clinician and financial outcomes. There are few studies that have investigated the outcomes of providing person-centred hearing rehabilitation (Grenness *et al.*, 2014a; Singh & Launer, 2016; Singh *et al.*, 2016), potentially due to the poor implementation of person-centred behaviours in hearing rehabilitation (Ekberg, Grenness & Hickson, 2014, 2017; Ekberg *et al.*, 2014, 2015; Grenness, *et al.*, 2015a, 2015b; Sciacca *et al.*, 2017). The choice of measures was influenced by the pragmatic design of this study (Cresswell, 2007; Feilzer, 2010; Willis, Jost & Nilakanta, 2007), and by choosing outcomes valued by senior managers of hearing rehabilitation organisations, promising findings could better support senior managers' decisions to implement person-centred practices not currently in use within their organisation. Limitations in the study design affected the interpretability of phase two results, although overall results suggest benefits to the hearing rehabilitation organisation. Nevertheless, preliminary results of this phase contribute to reducing the substantial evidence-gap regarding the outcomes of person-centred hearing rehabilitation, although further research is greatly needed.

The overall design of this thesis has implemented recommendations made by the Australian Commission for Safety and Quality in Healthcare (ACSQHC, 2011) for improving person-centred care. The ACSQHC (2011) emphasised the importance of senior management for person-centred care implementation (recommendation 10), which was confirmed within this research. The first phase found that person-centred care was not directly evaluated in Australian hearing rehabilitation organisations (recommendations 1-3, 15) despite its

importance for advancing person-centred care and organisational processes (recommendations 16, 21). The psychosocial communication intervention developed the capacity of staff to provide person-centred care (recommendation 19), and the intervention was associated with positive attitudes of clinicians towards their workplace (recommendation 20). Finally, by supporting and funding this research towards improving person-centred care, the HEARing CRC also fulfilled a recommendation made to research funding bodies (recommendation 8).

6.3 Implications of research findings

Suggestions for future research were made in chapters four and five for each phase of the exploratory-sequential mixed-methods research. Additional implications for clinicians, senior managers and funding bodies are discussed in this section.

Findings from the first phase provided insights into how success and person-centred care is defined and evaluated. Clinicians can benefit greatly from understanding how their senior managers define and evaluate success. Universities have competing agendas to develop the technical and communication skills of student audiologists during their training (Tai, Barr & Woodward-Kron, 2017) and may be unable to teach students the broader contextual factors which can impact future clinical practice. By understanding the criteria used by their senior managers to determine organisational success, audiologists can maximise the impact of their clinical practice on the organisation. For example, clinicians can be encouraged to continue in pursuing client outcomes as long as they recognise the important role of meeting financial outcomes for orgnisational success.

Clinicians who become middle or senior managers must expand their knowledge beyond clinical skills to include financial and leadership aspects. In the first phase, participants who also had financial qualifications were more confident in leading their organisations towards double bottom line success in a manner that prioritised client outcomes

but still achieved financial outcomes, but that valued staff factors while being consistent with the organisation's ethos, mission and vision. For managers who do not currently evaluate staff factors formally, the present study found that the Voice Climate Survey was easy to implement and interpret and could be introduced alongside current methods of evaluating staff factors in hearing rehabilitation organisations.

A key group that was not evaluated as part of organisational success were clients who did not adopt hearing aids. Given the negative effects of hearing impairment, it is critical to identify the reason(s) why any client with hearing impairment may choose not to proceed with hearing rehabilitation. Successful addressing of concerns may lead to improved device uptake and use. The second phase study attempted to explore the views of non-adopters but was restricted by the poor postal survey response. Questions exploring the client experience of care of non-adopters may be explored using novel methods seen in other industries.

Consistent with previous research, findings emphasise the crucial role of person-centred care to improve hearing rehabilitation uptake and use in order to reduce the deleterious effects of hearing impairment. Senior managers must encourage the implementation of person-centred care within the organisation. Although participant senior managers were able to describe person-centred care well, most could only describe one or two aspects of person-centred care. However, they were dedicated to realising nominated aspects within their organisation. A broader knowledge of person-centred care behaviours is still needed among clinicians and managers alike. Senior managers valued several aspects of person-centred care throughout the interviews and genuinely believed that they were delivering person-centred care to their clients based upon their self-determined criteria. However, person-centred care was not directly measured. Although better tools for clinical evaluation of person-centred care are still needed, senior managers could contribute towards

the development of such tools by clinically validating new tools within their hearing rehabilitation organisations.

The pragmatic design of this research was intended to provide a broader evidence-base to influence senior management decisions to improve the implementation of person-centred care in hearing rehabilitation organisations. The criteria used by senior managers for making decisions towards clinical practice (such as person-centred care) is now better understood, and the critical role of person-centred care for organisational success was reported by senior managers participating in the qualitative first phase. Despite a significant proportion of second phase results not found to be statistically significant, results were likely to be clinically relevant to senior managers of hearing rehabilitation organisations. Findings suggest that intervention group clients took up more hearing devices at higher technology levels and adhered to clinician recommendations of hearing aids, which could suggest greater financial success for the organisation. However, statistical analysis was unable to take into account demographic variables as confounders in the present study. Furthermore, intervention group clinicians expressed greater intention to stay with the organisation indicating better clinician retention. Although the scope of this thesis prevented further exploration of senior managers perceptions to the results, the value of these findings to the participating hearing rehabilitation organisation was confirmed anecdotally at the conclusion of the study. The organisation who participated in the second phase chose to incorporate a modified version of the psychosocial communication intervention for their 2019 graduate internship training suggesting that results were adequate to encourage and potentially sustain organisational implantation of person-centred care. Other organisations may benefit from more comprehensively incorporating person-centred care behaviours into their clinical practice and exploring the clinical outcomes of any change.

In their Roadmap for Hearing Health, the Australian Government has publicly supported the need for person- and family-centred care to reduce the burden of untreated hearing loss (Hearing Health Sector Committee, 2019). They advocate for more informed choice, better affordability for low income clients, and client involvement in the co-design of their hearing healthcare journey for better control of their own care (Hearing Health Sector Committee, 2019). They recognise that treating hearing loss goes beyond up-to-date and affordable technology and should include accessible and affordable post-fitting supports such as counselling for the client, device adjustments, group therapies and wider social supports (e.g., work) (Hearing Health Sector Committee, 2019). In other words, the Australian Government believes that new products and approaches to hearing care will need to be "need-driven and widely supported" with appropriate funding support and approach flexibility (Hearing Health Sector Committee, 2019). Current funding systems, such as the Hearing Services Program, provide a service delivery model that prioritises hearing device fittings (Office of Hearing Services, 2016). Payment scales still reward device fittings and maintenance over alternative rehabilitation options (Office of Hearing Services, 2016). For the recommendations made in the Roadmap for Hearing Health to lead clinical practice towards person-centred care, funding systems will need to set clear and explicit goals for patient-centred quality standards and consistently evaluate and monitor these goals (ACSQHC, 2011; Leyshon & McAdam, 2015). An external benchmarking service that provides client outcomes (including measures of person-centredness) to the public is recommended.

6.4 Conclusion

Person-centred care is expected to increase hearing rehabilitation uptake and use and reduce the deleterious effects of hearing impairment on society. This thesis used an exploratory sequential mixed-methods approach to build the evidence-base to improve the

implementation of person-centred care in Australian hearing rehabilitation organisations. Research findings have provided novel insights into how senior managers consider success and person-centred care within their hearing rehabilitation organisations. The psychosocial communication intervention was associated with benefits to the hearing rehabilitation organisation that are valued by senior managers, but more rigorous research is still needed to confirm preliminary results. The findings collectively imply that future interventions that target senior managers are still needed to improve person-centred care evaluation and practice in hearing rehabilitation organisations.

7 References

Abrams, H., Hnath Chisolm, T., & McArdle, R. (2002). A cost-utility analysis of adult group audiologic rehabilitation: Are the benefits worth the cost? *Journal of Rehabilitation Research and Development, 39*(5), 549-558

Abrams, H.B., & Kihm & J. (2015). An introduction to MarkeTrak IX: A new baseline for the hearing aid market. *Hearing Review, 22*(6), 16

ACSQHC: Australian Commission on Safety and Quality in Health Care (2011), Patient- centred care: Improving quality and safety through partnerships with patients and consumers, ACSQHC, Sydney

Ahn, H., Keyser, D., & Hayward-Everson, R. A. (2016). A multi-level analysis of individual and agency effects on implementation of family-centered practice in child welfare. *Children and Youth Services Review, 69,* 11–18.

Ali, A. (2017). *Evaluation of audiological rehabilitation services for adults with hearing impairment in Malaysia* (Unpublished doctoral dissertation). The University of Queensland, Brisbane, Australia.

Ali, A., Meyer, C., & Hickson, L. (2018). Patient-centred hearing care in Malaysia: What do audiologists prefer and to what extent is it implemented in practice? *Speech, Language and Hearing, 21*(3), 172-182. DOI: 10.1080/2050571X.2017.1385167

Atkins, L., Francis, J., Islam, R., O'Connor, D., Patey, A., Ivers, N. Foy, R., Duncan, E.M., Colquhoun, H., Grimshaw, J.M., Lawton, R., & Michie, S. (2017). A guide to using the Theoretical Domains Framework of behaviour change to investigate implementation problems. *Implementation Science, 12*(77), DOI: 10.1186/13012-017-0605-9

Avery, N. & Patterson, S. (2018). Physical health in public mental health care: A qualitative Avery, N., & Patterson, S. (2018). Physical Health in Public Mental Health Care: A Qualitative Study Employing the COM-B Model of Behaviour to Describe Views and Practices of Australian Psychologists, *53*, 302–312. DOI: 10.1111/ap.12302

Bamm, E.L., Rosenbaum, P. & Stratford, P. (2010). Validation of the measure of process of care for adults: A measure of client-centred care. *International Journal for Quality in Health Care, 22*(4), 302-309

Barbour, R.S. (2001). Checklists for improving rigour in qualitative research: A case of the tail wagging the dog? *BMJ, 322*(7294), 1115-1117. DOI: 10.1136/bmj.322.7294.1115

Barker, A.B., Leighton, P., & Ferguson, M.A. (2017). Coping together with hearing loss: A qualitative meta-synthesis of the psychosocial experiences of people with hearing loss and their communication partners. *International Journal of Audiology, 56*(5), p.297-305. DOI: 10.1080/14992027.2017.1286695

Barker, F., Mackenzie, E., Elliott, L., Jones, S., & de Lusignan, S. (2016). Interventions to improve hearing aid use in adult auditory rehabilitation. *Cochrane Database of Systematic Reviews,* 8. DOI: 10.1002/14651858.CD010342.pub3

Barr, C., Erbasi, E., Conway, N., Meyer, C., Waite, M., Ekberg, K., Scarinci, N., Cowan, R., & Hickson, L. (2018). *Behaviour change, but not as you know it: Using the Behavior Change Wheel to develop an intervention to change audiologists' psychosocial communication behaviours*. Paper presented at the 2018 Academy of Rehabilitative Audiology Institute, Pittsburgh, PA.

Barr, C., Quinn, S., & Williams, C. (2012). Changes in self-reported outcomes with hearing aids over time. *The Australian and New Zealand Journal of Audiology, 32*(2), 95-105

Battersby, M.W., Ask, A., Reece, M.M., Markwick, M.J., & Collins, J.P. (2003). The Partners in Health scale: The development and psychometric properties of a generic assessment scale for chronic condition self-management. *Australian Journal of Primary Health, 9*(2 & 3), 41-52

Bauman, A.E., Fardy, H.J., & Harris, P.G. (2003). Getting it right: Why bother with patient-centred care? *MJA, 179*, 253-256.

Beck, R. S., Daughtridge, R., & Sloane, P. D. (2002). Physician-patient communication in the primary care office: a systematic review. *Journal of the American Board of Family Practice, 15*(1), 25–38.

Bokhour, B.G., Fix, G.M., Mueller, N.M., Barker, A.M., Lavela, S.L., Hill, J.N., Solomon, J.L., & VanDeusen Lukas, C. (2018). How can healthcare organizations implement patient-centered care? Examining a large-scale cultural transformation. *BMC Health Services Research,* 18, 168. DOI: 10.1186/s12913-108-2949-5

Bond, M., Mealing, S., Anderson, R., Elston, J., Weiner, G., Taylor, R.S., Hoyle, M., Liu, Z., Price, A., & Stein, K. (2009). The effectiveness and cost-effectiveness of cochlear implants for severe to

profound deafness in children and adults: A systematic review and economic model. *Hearing Technology Assessment*, *13*(44), 1-330. DOI: 10.3310/hta13440

Braun, V. and Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*(2), 77-101. DOI: 10.1191-1478088706qp06

Brink, P., & Stones, M. (2007). Examination of the relationship among hearing impairment, linguistic communication, mood, and social engagement of residents in complex continuing-care facilities. *Gerontologist*, *47*(5), 633–641. DOI: 10.1093/geront/47.5.633

Brooks, J., McCluskey, S., Turley, E., & King, N. (2015). The utility of template analysis in qualitative psychology research. *Qualitative Research in Psychology*, *12*(2), p.202-222. DOI: 10.1080/147808887.2014.955224

Carlström, E.D. & Ekman, I. (2012). Organisational culture and change: Implementing person-centred care. *Journal of Health Organization and Management*, *26*(2), 175-191. DOI: 10.1108/14777261211230763

Chandra, N., & Searchfield, G.D. (2016). Perceptions toward internet-based delivery of hearing aids among older hearing-impaired adults. *Journal of the American Academy of Audiology*, *27*, 441-457. DOI: 10.3766/jaaa.15058

Charmel, P.A. & Frampton, S.B. (2008). Building the business case for patient-centred care. *Healthcare Financial Management*, March, 1-6.

Chia, E.-M., Wang, J.J., Rochtchina, E., Cumming, R.R., Newall, P., & Mitchell, P. (2007). Hearing impairment and health related quality of life: The Blue Mountains Hearing Study. *Ear & Hearing*, *28*(2), 187-195

Ching, T.Y.C., and Hill, M. (2007). The Parents' Evaluation of Aural/oral performance of Children (PEACH) scale: Normative data. *Journal of American Academy of Audiology*, *18*(3), 221-237

Chisolm, T.H. and Abrams, H.B. (2008). Outcome measures and evidence-based practice. In *Audiology Practice Management* by Hosford-Dunn, H., Roeser, R.J., and Valente, M. (eds.), Thieme Medical Publishers, Inc.: New York, NY, USA.

Cienkowski, K. M., & Saunders, G. H. (2013). An Examination of Hearing Aid Counseling Implemented by Audiologists. *Perspectives on Aural Rehabilitation and Its Instrumentation*, *20*(2), 67–76. DOI: 10.1044/arii20.2.67

Constand, M. K., MacDermid, J. C., Dal Bello-Haas, V., & Law, M. (2014). Scoping review of patient-centered care approaches in healthcare. *BMC Health Services Research*, *14*(1), 271. DOI: 10.1186/1472-6963-14-271

Contrera, K. J., Wallhagen, M. I., Mamo, S. K., Oh, E. S., & Lin, F. R. (2016). Hearing Loss Health Care for Older Adults. *Journal of the American Board of Family Medicine*, *29*(3), 394–403. DOI: 10.3122/jabfm.2016.03.150235

Convery, E., Hickson, L., Meyer, C., & Keidser, G. (2019). Predictors of hearing loss self-management in older adults. *Disability and Rehabilitation*, *41*(17), 2026–2035. DOI: 10.1080/09638288.2018.1457091

Convery, E., Meyer, C., Keidser, G., & Hickson, L. (2018). Assessing hearing loss self-management in older adults. *International Journal of Audiology*, *57*(4), 313-320. DOI: 10.1080/14992027.2017.1390268

Coulson, N. S., Ferguson, M. A., Henshaw, H., & Heffernan, E. (2016). Applying theories of health behaviour and change to hearing health research: Time for a new approach. *International Journal of Audiology*, *55*(May), S99–S104. DOI: 10.3109/14992027.2016.1161851

Cox, R.M., and Alexander, G.C. (2002). The International Outcome Inventory for Hearing Aids (IOI-HA): Psychometric properties of the English version. *International Journal of Audiology*, *41*, 30-35

Cox, R., Alexander, G., & Beyer, C. (2003). Norms for the international outcome inventory for hearing aids. *Journal of the American Academy of Audiology*, *14*(8), 403-418

Cox, R., Hyde, M., Gatehouse, S., Noble, W., Dillon, H., Bentler, R., Stephens, D., Arlinger, S., Beck, L., Wilkerson, D., Kramer, S., Kricos, P., Gagné, J.-P., Bess, F., & Hallberg, L. (2000). Optimal outcome measures, research priorities and international cooperation. *Ear & Hearing*, *21*(4) 106S-115S. DOI: 0196/0202/00/2104-0106S/0

Creswell, J.W. (2007). Qualitative inquiry & research design: Choosing among five approaches (2nd ed.). Sage Publications, Inc.: USA.

Cunningham, L.L., & Tucci, D.L. (2017). Hearing loss in adults. *New England Journal of Medicine*, 377, 2465-2473. DOI: 10.1056/NEJMra1616601

Dawes, P., Cruickshanks, K.J., Fischer, M.E., Klein, B.E.K., Klein, R., & Nondah, D.M. (2015). Hearing-aid use and long-term health outcomes: Hearing handicap, mental health, social engagement,

cognitive function, physical health, and mortality. *International Journal of Audiology, 54*, 838-844. DOI: 10.3109/14992027.2015.1059503

Department of Health (2013). Annual Report 2012-2013. Accessed from: https://www.health.gov.au/about-us/corporate-reporting/annual-reports

Department of Health (2016). Annual Report 2015-2016. Accessed from: https://www.health.gov.au/about-us/corporate-reporting/annual-reports

Department of Health (2018). Annual Report 2017-2018. Accessed from: https://www.health.gov.au/about-us/corporate-reporting/annual-reports

Department of Health (2017). *Review of services and technology supply in the Hearing Services Program*. Prepared by PricewaterhouseCoopers Australia.

de Silva, D. (2014). Helping measure person-centred care. *The Health Foundation*: London, UK.

DiCicco-Bloom, B., & Crabtree, B.F. (2006). The qualitative research interview. *Medical Education, 40,* 314-321

Dillon, H., Birtles, G., & Lovegrove, R. (1999). Measuring the outcomes of a national rehabilitation program: Normative data for the Client Oriented Scale of Improvement (COSI) and the Hearing Aid User's Questionnaire (HAUQ). *Journal of the American Academy of Audiology, 10,* 67-79.

DiLollo, A. (2014). Personal narratives in audiologic rehabilitation. *Perspectives on Aural Rehabilitation and Its Instrumentation, 21*(1), 6-14. DOI: 10.1044/arri21.1.6

Douglas, A., & Kelly-Campbell, R. (2018). Readability of patient-reported outcome measures in adult audiologic rehabilitation. *American Journal of Audiology, 27*(2), p.208-218. DOI: 10.1044/2018_AJA-17-0095

Dupuis, K., Reed, M., Bachmann, F., Lemke, U., & Pichora-Fullerb, K. K. (2019). The circle of care for older adults with hearing loss and comorbidities: A case study of a geriatric audiology clinic. *Journal of Speech, Language, and Hearing Research, 62*(4), 1203–1220. DOI: 10.1044/2018_JSLHR-H-ASCC7-18-0140

Ekberg, K., Barr, C., & Hickson, L. (2017). Difficult conversations: Talking about cost in audiology consultations with older adults. *International Journal of Audiology, 56*(11), 854-861, DOI: 10.1080/14992027.2017.1339128

Ekberg, K., Grenness, C., & Hickson, L. (2016). Application of the transtheoretical model of behavior change for identifying older clients' readiness for hearing rehabilitation during history-taking in audiology appointments. *International Journal of Audiology, 55*(S3), S42-51. DOI: 10.3109/14992027.2015.1136080

Ekberg, K., Grenness, C., & Hickson, L. (2014). Addressing patients' psychosocial concerns regarding hearing aids within audiology appointments for older adults. *American Journal of Audiology, 23*(September), 337–351. DOI: 10.1044/2014_AJA-14-0011

Ekberg, K., Meyer, C., Scarinci, N., Grenness, C., & Hickson, L. (2014). Disagreements between clients and family members regarding clients' hearing and rehabilitation within audiology appointments for older adults. *Journal of Interactional Research in Communication Disorders, 5*(2), 217-244. DOI: 10.1558/jircd.v5i2.217

Ekberg, K., Meyer, C., Scarinci, N., Grenness, C., & Hickson, L. (2015). Family member involvement in audiology appointments with older people with hearing impairment. *International Journal of Audiology, 54*, 70-76. DOI: 10.3109/14992027.2014.948218

English, K., & Archbold, S. (2014). Measuring the effectiveness of an audiological counseling program. *International Journal of Audiology*, *53*(2), 115–120. DOI: 10.3109/14992027.2013.837224

Feilzer, M.Y. (2010). Doing mixed methods research pragmatically: Implications for the rediscovery of pragmatism as a research paradigm. *Journal of Mixed Methods Research, 4*(1), 6-16. DOI: 10.1177/1558689809349691

Ferguson, M.A., Kitterick, P.T., Chong, L.Y., Edmonson-Jones, M., Barker, F., & Hoare, D.J. (2017). Hearing aids for mild to moderate hearing loss in adults. *Cochrane Database of Systematic Reviews*, 9, DOI: 10.1002/14651858.CD012023.pub2.

Ferguson, F., & Olson, A. (2019). UK Survey on Outcome Measures used in NHS Adult Rehabilitation Services. *Audacity, 13*, 7-10

Fetters, M.D., Curry, L.A., & Creswell, J.W. (2013). Achieving integration in mixed methods design – principles and practices. *Health Services Research, 48*(6), 2134-2156. DOI: 10.1111/1475-6773.12117

Fixsen, D.L., Naoom, S.F., Blasé, K.A., Friedman,R.M. & Wallace, F. (2005). *Implementation Research: A Synthesis of the Literature.* Tampa, FL: University of South Florida, Louis de la Parte Florida

Mental Health Institute, The National Implementation Research Network (FMHI Publication #231).

Flannery, C., McHugh, S., Anaba, A. E., Clifford, E., O'Riordan, M., Kenny, L.C., McAuliffe, M., Kearney, P.M., & Byrne, M. (2018). Enablers and barriers to physical activity in overweight and obese pregnant women: An analysis informed by the theoretical domains framework and COM-B model. *BMC Pregnancy and Childbirth*, *18*(1), 1–14. DOI: 10.1186/s12884-018-1816-z

Fung, C. H., Lim, Y., Mattke, S., Damberg, C., & Shekelle, P. G. (2008). Improving patient care systematic Review : The Evidence That Publishing Patient Care Performance Data Improves Quality of Care. *Annals of Internal Medicine*, *148*(2), 111–123. DOI: 10.7326/0003-4819-148-2-200801150-00006

Gale, N.K., Heath, G., Cameron, E., Rashid, S., & Redwood, S. (2013). Using the framework method for the analysis of qualitative data in multi-disciplinary health research. *BMC Medical Research Methodology, 13,* 117-124

GBD 2015 Disease and Injury Incidence and Prevalence Collaborators. (2016). Global, regional, and national incidence, prevalence, and years lived with disability for 310 diseases and injuries, 1990-2015: A systematic analysis for the Global Burden Disease Study 2015. *Lancet,* 388, 1545-1602

Gillespie, R., Florin, D., & Gillam, S. (2004). How is patient-centred care understood by the clinical, managerial and lay stakeholders responsible for promoting this agenda? *Health Expectations*, *7*(2), 142–148. DOI: 10.1111/j.1369-7625.2004.00264.x

Golub, J. S., Brewster, K. K., Brickman, A. M., Ciarleglio, A. J., Kim, A. H., Luchsinger, J. A., & Rutherford, B. R. (2019). Association of Audiometric Age-Related Hearing Loss with Depressive Symptoms among Hispanic Individuals. *JAMA Otolaryngology - Head and Neck Surgery*, *145*(2), 132–139. DOI: 10.1001/jamaoto.2018.3270

Gopinath, B., Schneider, J., Hickson, L., McMahon, C. M., Burlutsky, G., Leeder, S. R., & Mitchell, P. (2012). Hearing handicap, rather than measured hearing impairment, predicts poorer quality of life over 10 years in older adults. *Maturitas*, *72*(2), 146–151. DOI: 10.1016/j.maturitas.2012.03.010

Grenness, C., Hickson, L., Laplante-Lévesque, A., & Davidson, B. (2014a). Patient-centred care: A review for rehabilitative audiologists. *International Journal of Audiology*, *53*, S60-67. DOI: 10.3109/14992027.2013.847286

Grenness, C., Hickson, L., Laplante-Lévesque, A., & Davidson, B. (2014b). Patient-centred audiological rehabilitation: Perspectives of older adults who own hearing aids. *International Journal of Audiology, 53,* S68-75. DOI: 10.3109/14992027.2013.866280

Grenness, C., Hickson, L., Laplante-Lévesque, A., Meyer, C., & Davidson, B. (2015a). Communication patterns in audiologic rehabilitation history-taking: Audiologists, patients and their companions. *Ear & Hearing, 36*(2), 191-204

Grenness, C., Hickson, L., Laplante-Lévesque, A., Meyer, C., & Davidson, B. (2015b). The nature of communication throughout diagnosis and management planning in initial audiologic rehabilitation consultations. *Journal of the American Academy of Audiology, 26,* 36-50. DOI: 10.3766/jaaa.26.1.5

Grol, R. (2001). Improving the Quality of Medical Care. *JAMA, 286*(20), 2578–2585. DOI: 10.1001/jama.286.20.2578

Gupta, D.M., Boland Jr, R.J., & Aron, D.C. (2017). The physician's experience of changing clinical practice: A struggle to unlearn. *Implementation Science, 17*(28), 1-11. DOI: 10.1186/s13012-017-0555-2

Hartley, D., Rochtchina, E., Newall, P., Golding, M., & Mitchell, P. (2010). Use of Hearing Aids and Assistive Listening Devices in an Older Australian Population. *Journal of the American Academy of Audiology, 21*(10), 642–653. DOI: 10.3766/jaaa.21.10.4

He, P., Wen, X., Hu, X., Gong, R., Luo, Y., Guo, C., … Zheng, X. (2018). Hearing aid acquisition in Chinese older adults with hearing loss. *American Journal of Public Health, 108*(2), 241–247. DOI: 10.2105/AJPH.2017.304165

Heacock, R.M., Montano, J.J., & Preminger, J.E. (2019). Adult children's perspectives on their role in their parent's hearing healthcare processes. *Journal of the American Journal of Audiology, 30,* 871-882. DOI: 10.3766/jaaa.17124

Hearing Health Sector Committee. (2019). Roadmap for Hearing Health: Supporting all Australians who are deaf or hard of hearing to live well in the community. Australia.

Heffernan, E., Coulson, N.S., Henshaw, H., Barry, J.G., & Ferguson, M.A. (2016). Understanding the psychosocial experiences of adults with mild-moderate hearing loss: An application of

Leventhal's self-regulatory model. *International Journal of Audiology, 55*(sup 3), S3-S12, DOI: 10.3109/14992027.2015.1117663

Heidenreich, P.A. (2013). Time for a thorough evaluation of patient-centered care. *Circ Cardiovasc Qual Outcomes, 6*, 2-4. DOI: 10.1161/CIRCOUTCOMES.112.970194

Helfrich, C.D., Sylling, P.W., Gale, R.C., Mohr, D.C., Stockdale, S.E., Joos, S., Brown, E.J., Grembowski, D., Asch, S.M., Fihn, S.D., Nelson, K. & Meredith, L.S. (2016). The facilitators and barriers associated with implementation of a patient-centered medical home in VHA. *Implementation Science*, *11*(1), 24. DOI: 10.1186/s13012-016-0386-6

Heuermann, H., Kinkel, M., & Tchorz, J. (2005). Comparison of psychometric of the International Outcome Inventory for Hearing Aids (IOI-HA) in various studies. *International Journal of Audiology*, *44*(2), 102–109. DOI: 10.1080/14992020500031223

Hickson, L., Meyer, C., Lovelock, K., Lampart, M., & Khan, A. (2014). Factors associated with success with hearing aids in older adults. *International Journal of Audiology,* 53, S18-S27. DOI: 10.3109/14992027.2013.860488

Hnath Chisolm, T., Johnson, C.E., Danhauer, J.L., Portz, L.J.P., Abrams, H.B., Lesner, S., McCarthy, P.A., & Newman, C.W. (2007). A Systematic Review of Health-Related Quality of Life and Hearing Aids: Final Report of the American Academy of Audiology Task Force on the Health-Related Quality of Life Benefits of Amplification in Adults. *Journal of the American Academy of Audiology, 18*(2), 151-183.

Hojat, M. (2016). The Jefferson Scale of Empathy. In *Empathy in health professions education and patient care* (pp. 83-128). Springer, Cham. DOI: 10.1007/978-3-319-27625-0_7

Hojat, M., Gonnella, J. S., Nasca, T. J., Mangione, S., Veloski, J. J., & Magee, M. (2002a). The Jefferson Scale of Physician Empathy: Further psychometric data and differences by gender and specialty at item level. *Academic Medicine [Supplement], 77*, S58–S60.

Hojat, M., Gonnella, J. S., Nasca, T. J., Mangione, S., Vergare, M., & Magee, M. (2002b). Physician empathy: Definition, components, measurement, and relationship to gender and specialty. *American Journal of Psychiatry, 159,* 1563–1569.

Hojat, M., Mangione, S., Nasca, T. J., Cohen, M. J. M., Gonnella, J. S., Erdmann, J. B., … Magee, M. (2001). The Jefferson Scale of Physician Empathy: Development and preliminary psycho-metric data. *Educational and Psychological Measurement, 61,* 349–365.

Hornsby, B. W. Y., & Kipp, A. M. (2016). Subjective ratings of fatigue and vigor in adults with hearing loss are driven by perceived hearing difficulties not degree of hearing loss. *Ear and Hearing*, *37*(1), e1–e10. DOI: 10.1186/s12913-015-1004-z

Hudon, C., Fortin, M., Haggerty, J.L., Lambert, M., & Poitras, M.-E. (2012). Measuring patients' perceptions of patient-centered care: A systematic review of tools for family medicine. *Annals of Family Medicine, 9*(2), 155-164. DOI: 10.1370/afm.1226

IBM Corp. Released 2019. IBM Statistics for Windows, Version 26.0. Armonk, NY: IBM Corp.

Ingo, E., Brännström, K. J., Andersson, G., Lunner, T., & Laplante-Lévesque, A. (2016). Measuring motivation using the transtheoretical (stages of change) model: A follow-up study of people who failed an online hearing screening. *International Journal of Audiology*, *55*(sup3), S52–S58. DOI: 10.1080/14992027.2016.1182650

Ismail, A.H., Munro, K.J., Armitage, C.J., & Dawes, P.D. (2019). What do hearing healthcare professionals do to promote hearing aid use and benefit among adults? A systematic review. *International Journal of Audiology*, *58*(2), 63-76. DOI: 10.1080/14992027.2018.1531154

Jayadevappa, R., & Chhatre, S. (2011). Patient Centered Care - A Conceptual Model and Review of the State of the Art. *The Open Health Services and Policy Journal*, *4*(1), 15–25. DOI: 10.2174/1874924001104010015

Johnson, C.E., Jilla, A.M., & Danhauer, J.L. (2018). Developing foundational counseling skills for addressing adherence issues in auditory rehabilitation. *Seminars in Hearing*, *39*(1), 13-31. DOI: 10.1055/s-0037-1613702

Kamil, R.J. & Lin, F.R. (2015). The effects of hearing impairment in older adults on communication partners: A systematic review. *J Am Acad Audiol, 26,* 155-182. DOI: 10.3766/jaaa.26.2.6

Kane, G.C., Gotto, J.L., Mangione, S., West, S., & Hojat, M. (2007). Jefferson Scale of Patient's Perceptions of Physician Empathy: Preliminary psychometric data. *Croatian Medical Journal, 48*(1), 81-86.

Karawani, H., Jenkins, K., & Anderson, S. (2018). Restoration of sensory input may improve cognitive and neural function. *Neuropsychologia*, *114*(April), 203–213. DOI: 10.1016/j.neuropsychologia.2018.04.041

Kasewurm, G. (2016). Tools for success in private practice. *Seminars in Hearing, 37*(4), 359-368

King N. (2012). Doing template analysis. In: Symon G, editor; Cassell C, editor. *Qualitative organizational research.* Sage; London: pp. 426–50

Kirkley, C., Bamford, C., Poole, M., Arksey, H., Hughes, J., & Bond, J. (2011). The impact of organisational culture on the delivery of person-centred care in services providing respite care and short breaks for people with dementia. *Health and Social Care in the Community, 19*(4), 438-448. DOI: 10.1111/j.1365-2524.2011.00998.x

Knudsen, L.V., Nielsen, C., Kramer, S.E., Jones, L., & Laplante-Lévesque, A. (2013). Client labor: Adults with hearing impairment describing their participation in their hearing help-seeking and rehabilitation. *J Am Acad Audiol*, 24, 192-204. DOI: 10.3766/jaaa.24.3.5

Knudsen, L.V., Öberg, M., Nielsen, C., Naylor, G., & Kramer, S.E. (2010). Factors influencing help-seeking, hearing aid uptake, hearing aid use and satisfaction with hearing aids: A review of the literature. *Trends in Amplification, 14*(3), 127-154. DOI: 10.1177/1084713810385712

Kochkin, S., Beck, D.L., Christensen, L.A., Compton-Conley, C., Fligor, B.J., Kricos, P.A., McSpaden, J.B., Mueller, H.G., Nilsson, M.J., Northern, J.L., Powers, T.A., Sweetow, R.W., Taylor, B., & Turner, R.G. (2010). MarkeTrak VIII: The impact of the hearing healthcare professional on hearing aid user success. *Hearing Review, April,* 12-34.

Krol, M.W., de Boer, D., Delnoij, D.M., Rademakers, J.J.D.J.M. (2014). The Net Promoter Score – an asset to patient experience surveys? *Health Expectations, 18*, 3099-3109

Kupfer, J.M. & Bond, E.U. (2012). Patient-satisfaction and patient-centred care: Necessary but not equal. *Journal of the American Medical Association, 308*(2), 139-140

Langford, P.H. (2009). Measuring organizational climate and employee engagement: Evidence for a 7 Ps model of work practices and outcomes. *American Journal of Psychology, 61*(4), 185-198. DOI: 10.1080/00049530802579481

Laplante-Lévesque, A. Hickson, L., & Grenness, C. (2014). An Australian survey of audiologists' preferences for patient-centredness. *International Journal of Audiology*, 53, S76-82. DOI: 10.3109/14992027.2013.832418

Laplante-Lévesque, A., Hickson, L., & Worrall, L. (2010). Factors influencing rehabilitation decisions of adults with acquired hearing impairment. *International Journal of Audiology*, *49*(7), 497–507. DOI: 10.3109/14992021003645902

Laplante-Lévesque, A., Knudsen, L. V., Preminger, J. E., Jones, L., Nielsen, C., Öberg, M., Lunner, T., Hickson, L., Naylor, G., & Kramer, S. E. (2012). Hearing help-seeking and rehabilitation: Perspectives of adults with hearing impairment. *International Journal of Audiology*, *51*(2), 93–102. DOI: 10.3109/14992027.2011.606284

Laplante-Lévesque, A., Nielsen, C., Jensen, L. D., & Naylor, G. (2014). Patterns of hearing aid usage predict hearing aid use amount (data logged and self-reported) and overreport. *Journal of the American Academy of Audiology*, *25*(2), 187–198. DOI: 10.3766/jaaa.25.2.7

Lee, S.M., Lee, DH, & Kang, C.-Y. (2012). The impact of high-performance work systems in the health0care industry: Employee reactions, service quality, customer satisfaction, and customer loyalty. *The Service Industries Journal*, *32*(1), 17-36. DOI: 10.1080/02642069.2010.545397

Leyshon, S., & McAdam, S. (2015). Scene setter : the importance of taking a systems approach to person centred care. *BMJ*, *985*(February), 2014–2015. DOI: 10.1136/bmj.h985

Lines, L. M., Lepore, M., & Wiener, J. M. (2015). Patient-centered, person-centered, and person-directed care: They are not the same. *Medical Care*, *53*(7), 561–563. DOI: 10.1097/MLR.0000000000000387

Liu, H., Zhang H., Liu, S., Chen, X., Han, D., & Zhang, L. (2011). International outcome inventory for hearing aids (IOI-HA): Results from the Chinese version. *International Journal of Audiology, 50*, 673-678. DOI: 10.3109/14992027.2011.588966

Luxford, K., Saffron, D.G., & Delbanco, T. (2011). Promoting patient-centered care: A qualitative study of the facilitators and barriers in healthcare organizations with a reputation for improving the patient experience. *International Journal for Quality in Health Care, 23*(5), 510-515. DOI: 10.1093/intqhc/mzr024

Loughrey, D. G., Kelly, M. E., Kelley, G. A., Brennan, S., & Lawlor, B. A. (2018). Association of age-related hearing loss with cognitive function, cognitive impairment, and dementia a systematic review and meta-analysis. *JAMA Otolaryngology - Head and Neck Surgery*, *144*(2), 115–126. DOI: 10.1001/jamaoto.2017.2513

Makarem, S. C., & Al-Amin, M. (2014). Beyond the Service Process: The Effects of Organizational and Market Factors on Customer Perceptions of Health Care Services. *Journal of Service Research*, *17*(4), 399–414. DOI: 10.1177/1094670514541965

Magill, M. K., Ehrenberger, D., Scammon, D. L., Day, J., Allen, T., Reall, A. J., … Kim, J. (2015). The cost of sustaining a patient-centered medical home: Experience from 2 states. *Annals of Family Medicine*, *13*(5), 429–435. DOI: 10.1370/afm.1851

Maidment, D.W., Ali, Y.H.K., & Ferguson, M.A. (2019). Applying the COM-B model to assess the usability of smartphone-connected listening devices in adults with hearing loss. *Journal of the American Academy of Audiology, 30,* 417-430. DOI: 10.3766/jaaa.18061

Manchaiah, V., Bellon-Harn, M.L., Dockens, A.L., Azios, J.H., & Harn, W.E. (2019). Communication between audiologist, patient, and patient's family members during initial audiology consultation and rehabilitation planning sessions: A descriptive review. *Journal of the American Journal of Audiology, 30,* 810-819. DOI: 10.3766/jaaa.18032

Manchaiah, V. & Danermark, B. (Eds.). (2017). *The experience of hearing loss: Journal through aural rehabilitation.* Abingdon, Oxon: Routledge

Manchaiah, V., Dockens, A.L., Bellon-Harn, M., & Burns, E.S. (2017). Noncongruence between audiologist and patient preferences for patient-centeredness. *Journal of the American Journal of Audiology,* 28, 636-643. DOI: 10.3766/jaaa.16084

Manchaiah, V., Gomersall, P.A., Tomes, D., Ahmadi, T., & Krishna, R. (2014). Audiologists' preferences for patient-centredness: A cross-sectional questionnaire study of cross-cultural differences and similarities among professionals in Portugal, India and Iran. *BMJ Open, 4,* 1-9. DOI: 10.1136/bmjopen-2014-005915

Manchaiah, V.K.C., Stephens, D., & Meredith, R. (2011). The patient journey of adults with hearing impairment: The patients' views. *Clin Otolarngol.* 36, 227-234

Manchaiah, V. Tomes, D., Dockens, A.L., Harn, M., Ganesan, P. (2016). Preference to patient-centredness in undergraduate audiology students in Portugal. *Journal of the American Journal of Audiology*, 27, 816-823. DOI: 10.3766/jaaa.15129

McCarthy, P., & Schau, N. (2008). Adult audiologic rehabilitation: a review of contemporary practices. *Contemporary Issues in Communication Science & Disorders*, *35*, 168-177 10p.

McCormack, A., & Fortnum, H. (2013). Why do people fitted with hearing aids not wear them? *International Journal of Audiology*, *52*(5), 360–368. DOI: 10.3109/14992027.2013.769066

McDonagh, L. K., Saunders, J. M., Cassell, J., Curtis, T., Bastaki, H., Hartney, T., & Rait, G. (2018). Application of the COM-B model to barriers and facilitators to chlamydia testing in general practice for young people and primary care practitioners: A systematic review. *Implementation Science*, *13*(1). DOI: 10.1186/s13012-018-0821-y

Mead, N., & Bower, P. (2000). Measuring patient-centredness : a comparison of three observation-based instruments. *Patient Education and Counseling*, *39*, 71–80.

Meyer, C., Scarinci, N., & Hickson, L. (2019). *Patient and family-centered speech-language pathology and audiology*. Thieme

Michie, S., Atkins, L., & West, R. (2014). The Behaviour Change Wheel: A guide to designing interventions (1st ed.). Silverback: London

Michie, S., van Stralen, M.M., & West, R. (2011). The behavior change wheel: A new method for characterizing and designing behavior change interventions. *Implementation Science*, *6*(42), 1-11.

Mikkola, T. M., Portegijs, E., Rantakokko, M., Gagné, J.-P., Rantanen, T., & Viljanen, A. (2015). Association of Self-Reported Hearing Difficulty to Objective and Perceived Participation Outside the Home in Older Community-Dwelling Adults. *Journal of Aging and Health* , *27*(1), 103–122. DOI: 10.1177/0898264314538662

Morgan, D.L. (2014). Pragmatism as a paradigm for social research. *Qualitative Inquiry, 20*(8), p.1045-1053. DOI: 10.1177/1077800413513733

Morgan, S., & Yoder, L. H. (2012). A Concept Analysis of Person-Centered Care. *Journal of Holistic Nursing*, *30*(1), 6–15. DOI: 10.1177/0898010111412189

Morse, J.M., and Richards, L. (2002). Readme first for a user's guide to qualitative methods. Sage Publications, Inc.: USA.

Muñoz, K., Ong, C. W., Borrie, S. A., Nelson, L. H., & Twohig, M. P. (2017). Audiologists' communication behaviour during hearing device management appointments. *International Journal of Audiology*, *56*(5), 328–336. DOI: 10.1080/14992027.2017.1282632

National Health and Medical Research Council. (2007). *National Statement on Ethical Conduct in Human Research 2007 (updated 2018).* Commonwealth of Australia: Canberra.

Ng, J. H.-Y., & Loke, A. Y. (2015). Determinants of hearing-aid adoption and use among the elderly: A systematic review. *International Journal of Audiology*, *2027*(April 2014), 1–10. DOI: 10.3109/14992027.2014.966922

Office of Hearing Services (2016). Australian Government Hearing Services Program Schedule of Fees: For the period of 01 July 2016 to 30 June 2017. Retrieved from: http://hearingservices.gov.au/wps/poc/hso?1dmy&urile=wcm%3apath%3a/hso%20content/public/hom e/about/legislation/contracts/schedule_fees%202016-2017

Office of Hearing Services (2018). Voucher program statistics for 1 July 2017 to 30 June 2018. Retrieved from: http://hearingservices.gov.au/wps/portal/hso/site/about/program_stats/annual-program-stats/

Olsson, L.-E., Hansson, E., Ekman, I., & Karlsson, J. (2009). A cost-effectiveness study of a patient-centred integrated care pathway. *Journal of Advanced Nursing, 65*(8), 1626-1635. DOI: 10.1111/j.1365-2648.2009.05017.x

Palmer, A.D., Cardner, P.C., White, D.L., Saunders, G., Woo, H., Graville, D.J., & Newsom, J.T. (2019). The impact of communication impairments on the social relationship of older adults: Pathways to psychological well-being. *Journal of Speech, Language & Hearing Research, 62*, 1-21. DOI: 10.23641/asha.7250282

Park, M., Giap, T-T-T., Lee, M., Jeong, H., Jeong, M., & Go, Y. (2018). Patient- and famiy-centered care interventions for improving the quality of health care: A review of systematic reviews. *International Journal of Nursing Studies, 87*, 69-83. DOI: 10.1016/j.ijnurstu.2018.07.006

Patton, M.Q. (2015). *Qualitative Research & Evaluation Methods (4th).* SAGE Publications, Inc.: USA.

Perneger, T.V. (1998). What's wrong with Bonferroni adjustments. *BMJ, 316*(April), p.1236-1238.

Pfund, C., House, S., Spencer, K., Asquith, P., Carney, P., Masters, K.S., McGee, R., Shanedling, J., Vecchiarelli, S., & Fleming, M. (2013). A research mentor training curriculum for clinical and translational researchers. *Clin Trans Sci, 6*, 26-33. DOI: 10.1111/cts.12009

Pichora-Fuller, M.K. (2015). Cognitive decline and hearing health care for older adults. *American Journal of Audiology, 24*, 108-111. DOI: 10.1044/2015_AJA-14-0076

Poost-Foroosh, L., Jennings, M.B., & Cheesman, M.F. (2015). Comparisons of client and clinician views of the importance of factors in client-clinician interaction in hearing aid purchase decisions. *Journal of the American Academy of Audiology*, 26, 247-259. DOI: 10.3766/jaaa.26.3.5

Poost-Foroosh, L., Jennings, M.B., Shaw, L., Meston, C.N., & Cheesman, M.F. (2011). Factors in client-clinician interactions that influence hearing aid adoption. *Trends in Amplification, 15*(3), 127-139. DOI: 10.1177/1084713811430217

Porter, S. (2007). Validity, trustworthiness and rigour: Reasserting realism in qualitative research. *Journal of Advanced Nursing, 60*(1), 79-86

Pronk, M., Deeg, D. J. H., & Kramer, S. E. (2018). Explaining discrepancies between the digit triplet speech-in-noise test score and self-reported hearing problems in older adults. *Journal of Speech, Language, and Hearing Research*, *61*(4), 986–999. DOI: 10.1044/2018_JSLHR-H-17-0124

Pronk, M., Deeg, D. J. H., Smits, C., Van Tilburg, T. G., Kuik, D. J., Festen, J. M., & Kramer, S. E. (2011). Prospective effects of hearing status on loneliness and depression in older persons: Identification of subgroups. *International Journal of Audiology*, *50*(12), 887–896. DOI: 10.3109/14992027.2011.599871

Pronk, M., Deeg, D. J. H., Versfeld, N. J., Heymans, M. W., Naylor, G., & Kramer, S. E. (2017). Predictors of Entering a Hearing Aid Evaluation Period: A Prospective Study in Older Hearing-Help Seekers. *Trends in Hearing*, *21*, 1–20. DOI: 10.1177/2331216517744915

Punch, J. L., Hitt, R., & Smith, S. W. (2019). Hearing loss and quality of life. *Journal of Communication Disorders*, *78*(December 2018), 33–45. DOI: 10.1016/j.jcomdis.2019.01.001

QSR International Pty Ltd. (2018). NVivo qualitative data analysis software Version 12. http://www.qsrinternational.com/

Rathert, C., Wyrwich, M.D., & Boren, S.A. (2012). Patient-centered care and outcomes: A systematic review of the literature. *Medical Care Research and Review, 70*(4), 351-379. DOI: 10.1177/1077558712465774

Reichheld, F. F. (2003). The one number you need to grow. *Harvard business review, 81*(12), 46-55.

Robinson, J. H., Callister, L. C., Berry, J. A., & Dearing, K. A. (2008). Patient-centered care and adherence: definitions and application to improve outcomes. *J Am Acad Nurse Pract*, *20*(12), 600–607.

Rolfe, G. (2006). Validity, trustworthiness and rigour: Quality and the idea of qualitative research. *Journal of Advanced Nursing, 53*(3), 304-310

Rolfe, C., & Gardner, B. (2016). Experiences of hearing loss and views towards interventions to promote uptake of rehabilitation support among UK adults. *International Journal of Audiology, 55*(11), 666–673. DOI: 10.1080/14992027.2016.1200146

Rosengren, K. (2016). Person-centred care: A qualitative study on first line managers experiences on its implementation. *Health Services Management Research, 1-8*

Rosenstock, M.M. (1966). Why people use health services. *Milbank Q, 44*, 94-122

Rozenblum, R., Lisby, M., Hockey, P.M., Levtzion-Korach, O., Salzburg, C.A., Efrati, N., Lipsitz, S., & Bates, D.W. (2012). *BMJ Quality & Safety,* 22, 242-250. DOI: 10.1136/bmjqs-2012-001045

Russo, T., Leach, C., Lysack, C., Paulson, D. & Lichtenberg, P. (2014). Efficacy of a train-the-trainer curriculum for increasing occupational therapists' mental health knowledge. *Occupational Therapy in Mental Health, 30*(1), 90-106. DOI: 10.1080/0164212X.2014.878515

Sandelowski, M. (1995). Sample size in qualitative research. *Research in Nursing & Health, 18*, 179-183

Sandelowski, M. (1993). Rigor or rigor mortis: The problem of rigor in qualitative research revisited. *Advanced Nursing Science, 16*(2), 1-8

Sandelowski, M., & Barroso, J. (2002). Reading qualitative studies. *International Journal of Qualitative Methods, 1*(1), 74-108

Saunders, G. H., Frederick, M. T., Silverman, S. P. C., Nielsen, C., & Laplante-Lévesque, A. (2016). Health behavior theories as predictors of hearing-aid uptake and outcomes. *International Journal of Audiology*, *55*(May), S59–S68. DOI: 10.3109/14992027.2016.1144240

Sciacca, A., Meyer, C., Ekberg, K., Barr, C., & Hickson, L. (2017). Exploring audiologists' language and hearing aid uptake in initial rehabilitation appointments. *American Journal of Audiology, 26*, 110-118. DOI: 10.1044/2017_AJA-16-0061

Scarinci, N., Meyer, C., Ekberg, K., & Hickson, L. (2013). Using a Family-Centered Care Approach in Audiologic Rehabilitation for Adults with Hearing Impairment. *Perspectives on Aural Rehabilitation and Its Instrumentation*, *20*(3), 83. DOI: 10.1044/arri20.3.83

Scarinci, N., Worrall, L., & Hickson, L. (2012). Factors associated with third-party disability in spouses of older people with hearing impairment. *Ear and Hearing*, *33*(6), 698–708. DOI: 10.1097/AUD.0b013e31825aab39

Schilder, A.G.M., Chong, L.Y., Ftough, S., & Burton, M.J. (2017). Bilateral versus unilateral hearing aids for bilateral hearing impairment in adults. C*ochrane Database of Systematic Reviews*, 12. DOI: 10.1002/14651858.CD012665.pub2.

Schneider, J. M., Gopinath, B., McMahon, C. M., Britt, H. C., Harrison, C. M., Usherwood, T., … Mitchell, P. (2010). Role of general practitioners in managing age-related hearing loss. *The Medical Journal of Australia*, *192*(1), 20–23.

Scholl, I., Zill, J. M., Harter, M., & Dirmaier, J. (2014). An integrative model of patient-centeredness - a systematic review and concept analysis. *PLoS ONE [Electronic Resource]*, *9*(9), e107828. DOI: 10.1371/journal.pone.0107828

Simning, A., Fox, M.L., Barnett, S.L., Sorensen, S., & Conwell, Y. (2019). Depressive and anxiety symptoms in older adults with auditory, visual, and dual sensory impairment. *Journal of Aging and Health, 31*(8), 1353-1375.

Singh, G., Hickson, L., English, K., Scherpiet, S., Lemke, U., & Timmer, B. (2016). Family-Centered Adult Audiologic Care: A Phonak Position Statement. *Hearing Review, 23*(4), p.16-25.

Singh, G., Lau, S.-T., & Pichora-Fuller, M. K. (2015). Social Support Predicts Hearing Aid Satisfaction. *Ear and Hearing*, (1), 664–676. DOI: 10.1097/AUD.0000000000000182

Singh, G., & Launer, S. (2016). Social Context and Hearing Aid Adoption. *Trends in Hearing*, *20*(0), 1–10. DOI: 10.1177/2331216516673833

Smith, D., Harvey, P., Lawn, S., Harris, M., & Battersby, M. (2017). Measuring chronic condition self-management in an Australian community: Factor structure of the revised Partners in Health (PIH) scale. *Quality of Life Research, 26,* 149-159. DOI: 10.1007/s11136-016-1368-5

Solheim, J., Gay, C., & Hickson, L. (2018). Older adults' experiences and issues with hearing aids in the first six months after hearing aid fitting. *International Journal of Audiology, 57*(1), 31–39. DOI: 10.1080/14992027.2017.1380849

Solheim, J., Gay, C., Lerdal, A., Hickson, L., & Kvaerner, K.J. (2018). An evaluation of motivational interviewing for increasing hearing aid use: A pilot study. *J Am Acad Audiol, 29*, 696-705. DOI: 10.3766/jaaa.16184

Solheim, J., & Hickson, L. (2017). Hearing aid use in the elderly as measured by datalogging and self-report. *International Journal of Audiology*, *56*(7), 472–479. DOI: 10.1080/14992027.2017.1303201

Sjoblad, S., & Warren, B. W. (2011). Myth Busters: Can You Unbundle and Stay in Business? *Audiology Today*, (SepOct), pp.37-45.

Stewart, M. A. (1995). Effective physician-patient communication and health outcomes: A review. *Canadian Medical Association Journal*, *152*(9), 1423–1433.

Sung, Y. K., Li, L., Blake, C., Betz, J., & Lin, F. R. (2016). Association of Hearing Loss and Loneliness in Older Adults. *Journal of Aging and Health*, *28*(6), 979–994. DOI: 10.1177/0898264315614570

Tahden, M. A. S., Gieseler, A., Meis, M., Wagener, K. C., & Colonius, H. (2018). What keeps older adults with hearing impairment from adopting hearing aids? *Trends in Hearing*, *22*, 1–17. DOI: 10.1177/2331216518809737

Tai, S., Barr, C., & Woodward-Kron, R. (2017). Competing agendas and other tensions in developing patient-centred communication in audiology education: A qualitative study of educator perspectives. *International Journal of Audiology, 57*(4), 274-282. DOI: 10.1080/14992027.2017.1385863

Taylor, B. (2016). Using Key Performance Indicators to do more with less in your practice. *Seminars in Hearing, 37*(4), 301-315

Taylor, B., Manchaiah, V., & Cutterbuck, S. (2016). Using the Personal Assessment of Communication Abilities (PACA) tool. *Hearing Review, 23*(3), 20

Tong, A., Sainsbury, P., & Craig, J. (2007). Consolidated criteria for reporting qualitative research (COREQ): A 32- item checklist for interviews and focus group. *International Journal of Qualitative in Health Care*, *19*(6), 349–357. DOI: 10.1093/intqhc/mzm042

Turnbull, B. (2016). How Do I Implement Family-centered Care in My Practice? *Hearing Review*, (December). Retrieved from http://www.hearingreview.com/2016/11/implement-family-centered-care-practice/

van der Laan, M.R.E., Offenbeek, M.A.G., Broekhuis, H., & Slaets, J.P.J. (2014). A person-centred segmentation study in elderly care: Towards efficient demand-driven care. *Social Science & Medicine*, 68-76. DOI: 10.1016/j.socscimed.2014.05.012

van Leeuwen, L. M., Pronk, M., Merkus, P., Goverts, S. T., Anema, J. R., & Kramer, S. E. (2018). Barriers to and enablers of the implementation of an ICF-based intake tool in clinical otology and audiology practice—A qualitative pre-implementation study. *PloS one*, *13*(12). DOI: 10.1371/journal.pone.0208797

van Leeuwen, L. M., Pronk, M., Merkus, P., Goverts, S. T., Anema, J. R., & Kramer, S. E. (2019). Developing an intervention to implement an ICF-based e-intake tool in clinical otology and audiology practice. *International Journal of Audiology*. DOI:10.1080/14992027.2019.1691746

Vas, V., Akeroyd, M. A., & Hall, D. A. (2017). A data-driven synthesis of research evidence for domains of hearing loss, as reported by adults with hearing loss and their communication partners. *Trends in Hearing*, *21*, 1–25. DOI: 10.1177/2331216517734088

Von Korff, M., Glasgow, R.E., Sharpe, M. (2002). Organising care for chronic illness. *BMJ*, *325*, 92-94.

Vuorialho, A., Karinen, P., & Sorri, M. (2006). Counselling hearing aid users is highly cost-effective. *Eur Arch Otorhinolaryngol*, 263, 988-995, DOI: 10.1007/s00405-006-0104-0

Walravens, E., Keidser, G., & Hickson, L. (2016). Provision, perception and use of trainable hearing aids in Australia: a survey of clinicians and hearing impaired adults. *International Journal of Audiology*, *55*(12), 787–795. DOI: 10.1080/14992027.2016.1219776

Weatherson, K. A., McKay, R., Gainforth, H. L., & Jung, M. E. (2017). Barriers and facilitators to the implementation of a school-based physical activity policy in Canada: Application of the theoretical domains framework. *BMC Public Health*, *17*(1), 1–16. DOI: 10.1186/s12889-017-4846-y

Whitmer, W. M., Wright-Whyte, K. F., Holman, J. A., & Akeroyd, M. A. (2016). Hearing Aid Validation. In G. R. Popelka (Ed.), *Hearing Aids* (Vol. 56, pp. 291–321). Springer International Publishing. DOI: 10.1007/978-3-319-33036-5_10

Wilberforce, M., Challis, D., Davies, L., Kelly, M. P., Roberts, C., & Loynes, N. (2016). Person-centredness in the care of older adults: a systematic review of questionnaire-based scales and their measurement properties. *BMC Geriatrics, 16*(1), 63. DOI: 10.1186/s12877-016-0229-y

William, G., Barr, C., Meyer, C., & Cowan, R. (2019). Are you providing person-centered hearing care? *The Hearing Journal, 72*(2), 18-21. DOI: 10.1097/01.HJ.0000553579.849.72.47

Williams, V. A., Johnson, C. E., & Danhauer, J. L. (2009). Hearing Aid Outcomes: Effects of Gender and Experience on Patients' Use and Satisfaction. *Journal of the American Academy of Audiology, 20*(7), 422–432. DOI: 10.3766/jaaa.20.7.4

Willis, J.W., Jost, M., and Nilakanta, R. (2007). Foundations of qualitative research: Interpretive and critical approaches. Sage Publications, Inc.: USA.

Wilson, B. S., Tucci, D. L., Merson, M. H., & O'Donoghue, G. M. (2017). Global hearing health care: new findings and perspectives. *The Lancet, 390*(10111), 2503–2515. DOI: 10.1016/S0140-6736(17)31073-5

Wong, L., & Hickson, L. (Eds.). (2012). Evidence-based practice in audiology: Evaluating interventions for children and adults with hearing impairment. Plural Publishing.

World Health Organization. (2019). Addressing the rising prevalence of hearing loss. *World Health Organization: Geneva. ISBN 978-92-4-155026-0*

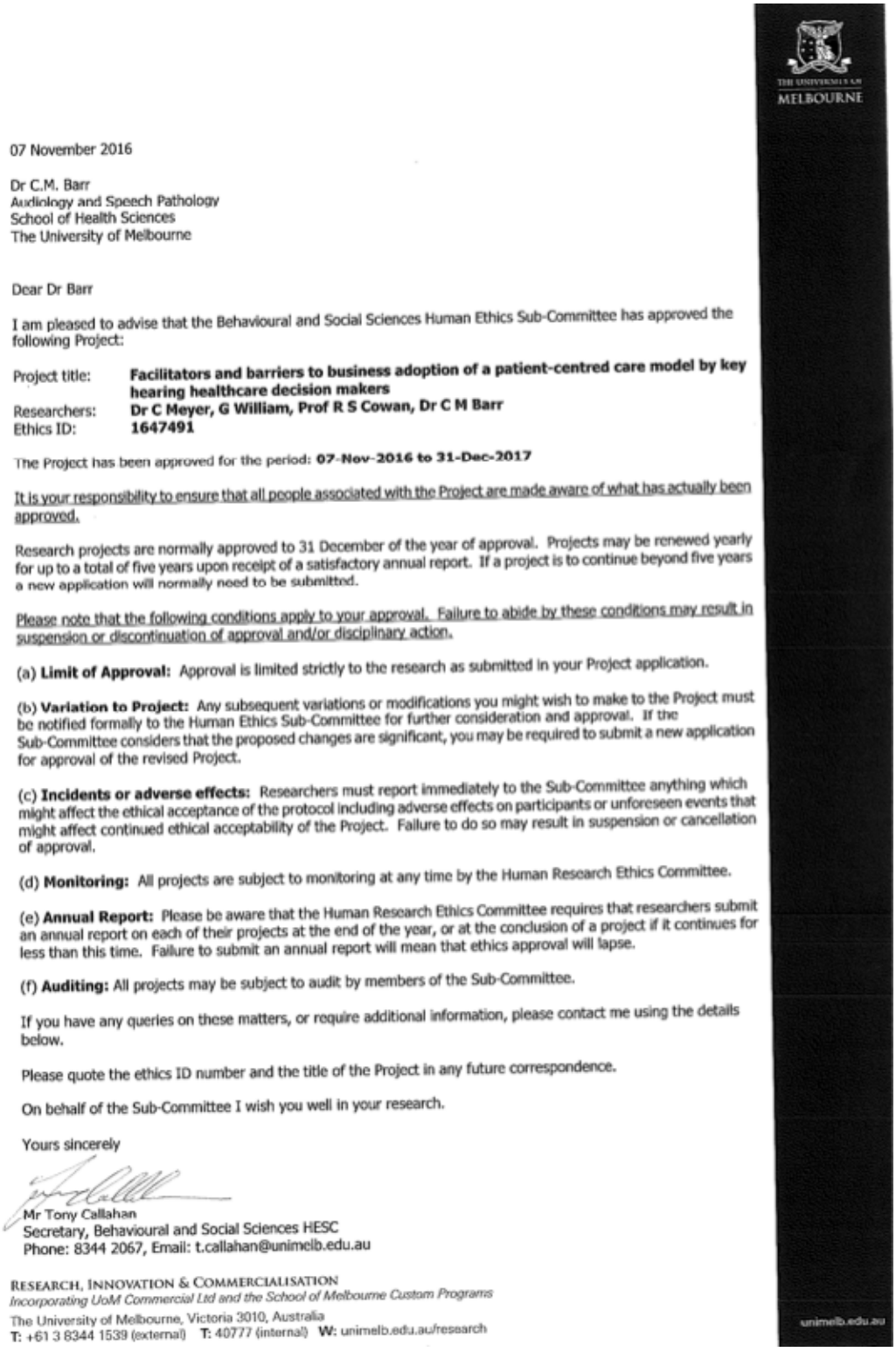
Zaki, M., Kandeil, D., Neely, A., & Mccoll-kennedy, J. R. (2016). The Fallacy of the Net Promoter Score: Customer Loyalty Predictive Model, *Cambridge Service Alliance*, 1-25

Zhao, F., Manchaiah, V., St. Claire, L., Danermark, B., Jones, L., Brandreth, M., … Goodwin, R. (2015). Exploring the influence of culture on hearing help-seeking and hearing-aid uptake. *International Journal of Audiology, 54*(7), 435–443. DOI: 10.3109/14992027.2015.1005848

Zill, J. M., Scholl, I., Härter, M., & Dirmaier, J. (2015). Which dimensions of patient-centeredness matter? - Results of a web-based expert Delphi survey. *PLoS ONE, 10*(11), 1–15. DOI: 10.1371/journal.pone.0141978

8 Appendices

8.1 Ethics approval documentation



THE UNIVERSITY OF MELBOURNE

07 November 2016

Dr C.M. Barr
Audiology and Speech Pathology
School of Health Sciences
The University of Melbourne

Dear Dr Barr

I am pleased to advise that the Behavioural and Social Sciences Human Ethics Sub-Committee has approved the following Project:

Project title: **Facilitators and barriers to business adoption of a patient-centred care model by key hearing healthcare decision makers**
Researchers: **Dr C Meyer, G William, Prof R S Cowan, Dr C M Barr**
Ethics ID: **1647491**

The Project has been approved for the period: **07-Nov-2016 to 31-Dec-2017**

It is your responsibility to ensure that all people associated with the Project are made aware of what has actually been approved.

Research projects are normally approved to 31 December of the year of approval. Projects may be renewed yearly for up to a total of five years upon receipt of a satisfactory annual report. If a project is to continue beyond five years a new application will normally need to be submitted.

Please note that the following conditions apply to your approval. Failure to abide by these conditions may result in suspension or discontinuation of approval and/or disciplinary action.

(a) **Limit of Approval:** Approval is limited strictly to the research as submitted in your Project application.

(b) **Variation to Project:** Any subsequent variations or modifications you might wish to make to the Project must be notified formally to the Human Ethics Sub-Committee for further consideration and approval. If the Sub-Committee considers that the proposed changes are significant, you may be required to submit a new application for approval of the revised Project.

(c) **Incidents or adverse effects:** Researchers must report immediately to the Sub-Committee anything which might affect the ethical acceptance of the protocol including adverse effects on participants or unforeseen events that might affect continued ethical acceptability of the Project. Failure to do so may result in suspension or cancellation of approval.

(d) **Monitoring:** All projects are subject to monitoring at any time by the Human Research Ethics Committee.

(e) **Annual Report:** Please be aware that the Human Research Ethics Committee requires that researchers submit an annual report on each of their projects at the end of the year, or at the conclusion of a project if it continues for less than this time. Failure to submit an annual report will mean that ethics approval will lapse.

(f) **Auditing:** All projects may be subject to audit by members of the Sub-Committee.

If you have any queries on these matters, or require additional information, please contact me using the details below.

Please quote the ethics ID number and the title of the Project in any future correspondence.

On behalf of the Sub-Committee I wish you well in your research.

Yours sincerely

Mr Tony Callahan
Secretary, Behavioural and Social Sciences HESC
Phone: 8344 2067, Email: t.callahan@unimelb.edu.au

RESEARCH, INNOVATION & COMMERCIALISATION
Incorporating UoM Commercial Ltd and the School of Melbourne Custom Programs
The University of Melbourne, Victoria 3010, Australia
T: +61 3 8344 1539 (external) T: 40777 (internal) W: unimelb.edu.au/research

unimelb.edu.au

THE UNIVERSITY OF QUEENSLAND
AUSTRALIA

Human Ethics Research Office

Cumbrae-Stewart Building #72
The University of Queensland
St Lucia, QLD 4072

CRICOS PROVIDER NUMBER 00025B

30 January 2017

Dr Carly Meyer, Dr Caitlin Barr
UQ School of Health and Rehabilitation Sciences; University of Melbourne Department of Audiology & Speech Pathology

Dear Dr Meyer,

Clearance Number: 2016001791 / 1647491
Project Title: "Facilitators and Barriers to Business Adoption of a Patient-Centred Care Model by Key Hearing Healthcare Decision Makers"

Following administrative review of the human research ethics approval from the University of Melbourne Behavioural and Social Sciences Human Ethics Sub-Committee, dated 07/11/2016 (1647491), I am pleased to advise that, as the University of Queensland's authorised delegate for the University of Queensland's Human Research Ethics Committees A & B, approval is granted for this project.

The approved documents include:

Document	Version	Date
Approval from the University of Melbourne Behavioural and Social Sciences Human Ethics Sub-Committee (1647491)		07/11/2016

This project has been approved to 31st December 2017.

We would like to take this opportunity to remind you that, should any modifications be made to this project, they will need to be approved by the lead human research ethics committee prior to being forwarded to the University of Queensland's human ethics office for administrative review and approval.

Please keep a copy of this document for your records.

Yours truly,

Nicole Shively

Nicole Shively
Deputy Director, Research Management Office
Research Ethics Operations
The University of Queensland

Address. Human Research Ethics Office
Cumbrae-Stewart Building #72
The University of Queensland
St Lucia, QLD 4072
E humanethics@research.uq.edu.au
W www.uq.edu.au/research/integrity-compliance/human-ethics

19 September 2018

Dr C.M. Barr
Audiology and Speech Pathology
The University of Melbourne

Dear Dr Barr

Project title: **Development and evaluation of HEARhelp™: A toolkit to optimize patient-centered hearing care**
Researchers: **Prof L Hickson, Dr C Meyer, Prof R S Cowan, Dr C M Barr, Dr E Erbasi, Ms N E Conway, G William, J Pang**
Ethics ID: **1646070**

I am pleased to advise that the amendment to this Project 1646070.7, dated 03/08/2018, has been approved by the Psychology Health and Applied Sciences Human Ethics Sub-Committee.

Please note it is your responsibility to ensure that all people associated with the Project are made aware of the amendment.

Yours sincerely

Mr Tony Callahan
Secretary, Psychology Health & Applied Sciences HESC
Phone: 8344 2017, Email: t.callahan@unimelb.edu.au

Research, Innovation and Commercialisation
Incorporating UoM Commercial Ltd

Alan Gilbert Building, Level 5, The University of Melbourne, 161 Barry Street, Victoria 3010 Australia
T: +61 9035 5943 | W: research.unimelb.edu.au | unimelb.edu.au

8.2 Topic guide for phase one qualitative interviews

Reminder: My core questions are:

1a. How do audiology business leaders **define and evaluate success**? (explore clinical practice decision making)

1b. How do senior managers currently **evaluate** Patient-Centred Hearing Rehabilitation (PCHR)?

Ask for examples, allow for pauses, smile

Warm-up: Talking about self:

Tell me broadly about the **role** you have for your organisation?

Section 1: Success

Talking about the organisation:

What is the **ethos/motto of your organisation**? (Substitute words: values, mission)
*What does this company **believe** in?*
*What is **important**?*

Measures of success:

What does **success** mean to you?
How do you **measure** it?
*How do you determine **which measures** to use?*
*What **specific outcome measures** do you use?*
*What about at an **organisational/patient/clinician** level?*
*Which of these do you find **most important**?*
*Which of these are **staff evaluated** on? Please give me an **example**.*
*What are the **consequences** of not meeting these outcomes?*

Section 2: Evaluating PCC:

There is growing evidence suggesting that hearing services need to be patient-centred. We are exploring factors that can influence the application of PCC.
Are you familiar with the term PCC? Tell me what you understand this term to mean.

For this section, I want to **focus specifically on the evaluation** of patient-centred care.
Note: Use patient-centred care, not person

Is PCC something that you evaluate within your organisation?

If yes: Great! Can you **tell me more** about how you do this?

If no: Okay, could you **tell me why you don't** evaluate PCC?

What **options/tools** are your familiar with for evaluating PCC?
How important is it to you and your organisation to evaluate PCC? Why or why not?
Does your organisation have the **time and resource**s to evaluate PCC?
How is your organisation **supported** in providing PCC?

Decision making:

How would the decision to implement/evaluate PCC be made within your organisation?
*How are **clinical decisions** made?*
What information would help you make this decision?
In order to make this change (i.e., incorporation of PCC evaluation) to occur, what would it take?
How would you assess if it was successful? (Methods and markers).

8.3 Table summarising the thematic analysis of how senior managers defined success across core and broader themes

Theme	Sub-theme	Category	Sub-category	Example Quote(s) *(Note: participant codes explained in section 4.2.2)*
Core Themes				
Client success	How client success is determined	Clients are happy		*Success is having a happy client: A client who comes in and we fulfil their needs. (N3)* Others: S1, S2, U2, U3
		Clients are satisfied		*It's really important to me that the client satisfaction is high, so that would probably be my number one. (G1)* Others: N2, U3, L1, L2
		Clients have their needs met		*This is my success and biggest success and I always bring it over to my people, is when the customers are happy. So what we do, we do everything, in order to satisfy the customer, with his special need of better hearing. (L2)* Others: N3
		Clients have their goals met		*Success to me I think is… knowing we've been able to help clients to achieve their goals (L3)* Others: N2
		Clients achieve their clinical outcomes, such as an improvement in their hearing		*The primary goal is the patient outcome. The best outcomes are their goal. (U2)* Other: L2
		Clients are cared for		*One is that we're caring. So, we care for each other, we care for our clients. (N3)* Other: G1
	Consequences	New clients		*With the clinical outcomes… one side is client outcomes that have been derived consistently, that is very good for us, obviously that would help the business to grow. And if that is not there the business won't grow so we won't see a constant flow of clients through (M3)*
		Busy clinic/diary		*… because we've got a busy clinic, we've got good clinicians who do a terrific job, and we get a lot of word-of-mouth referrals, and direct referrals from people who have seen that the clinic does what it hopefully sets out to do. We have got a lot of satisfied people that come through, and in providing a high level of clinical competency, and a high-level of clinical service, we don't get many people dissatisfied with what we offer. In doing so, we get more people coming into the clinic, our waiting list is, usually, quite full, and we get a very low level of cancellations or DNAs (did-not-attends) in the rehab clinic, because people value what we do (U3)* Others: U2, M2
		Client adherence to clinician recommendation		*I will say that the biggest success we can have, and under this you can subside all our other successes is when we are successful in satisfaction of our client's needs. Because then he will follow our advice to take the right product (L2)* Others: S1, N1
		Client retention		*Because at the end of the day, people will vote with their feet. And if they choose not to come back to you, it's because you haven't met their expectations… A lot of people won't necessarily tell you that they are not happy and they're going somewhere else, they'll just go somewhere else. (L1)* Others: U4, M1, L2
		Referrals to others (positive word-of-mouth)		*People referring me to their friends means I'm successful at what I do. (M2)* Others: L2, M1

		Future repurchase		*Our target is we want… to make them really happy for life… and we actually expect from them that after – if it's five years when they can get a new hearing aid - that they should come back to us. (L2)* Others: U4
	Necessary factors	Audiological	Properly fitted devices	*I personally love it when customers come from competition and they are not happy with the product and that we just do one session, we do a bit of re-fitting and then the customer is happy. This proves to me that it was not the product it was the fitting. (L2)* Others: S2
			Benefit from hearing device	*So client satisfaction, the benefit they get leads to them being happy. (S2)*
			Latest technology	*Especially in a company like ours. Our competitors have nothing new for six, seven, eight years, you don't have to look out for new products. When you're in a very positive situation that I have new technology every second year. Every second year, every two years, I have a new technology in my hands. (L2)*
			Evidence-based practice	*We are very evidence-based here (N2)* Others: G1, U1, U2, L3
			Seen by qualified and well-trained professionals	*You have to have really good trained audiologists/audiometrists (L2)* Others: S1, N2
		Organisational	Consistent, high quality services	*provide quality services to every client, every time (M2)* Others: N1, M3, U2, G1
			Strong clinical processes leading to positive experience	*Success means ensuring that the processes and language and approach are all in place throughout Australia, so that clients coming in get the best possible outcome depending on their circumstances. (G1)* Others: M1
			Providing additional services to help the client achieve their rehabilitation goal(s)	*Where clinically you might feel that this client needs to come back for another follow or if you could just have another half an hour with this person to work on putting the mould in or something like that, that you would get a better outcome. (M1)* Others: M3, U3
			Create better value than competitors and not taking action	*Are they continuing to choose me against all the other options, including doing nothing? …the biggest competitor is it's not worth the hassle, so you have to deliver more value than the time investment that they're going to make to come and see you. (L1)*
			Ethical practice is important for clinical outcomes	*The most important things to me is, I would say, professional and ethical behaviour of staff. (N2)* Others: N3, M1, L2, U4
			Has to be ongoing and long-term	*We all feel that we have a happy and satisfied client when they leave, after their initial stage of the rehab programme, and then when we touch in, and when they come in for follow-ups, as part of the ongoing relationship that we have with them, then we actively seek if there's any problems, and try to improve them. (U3)* Others: L2
		Requires person-centred behaviours	Clinical processes must be person-centred (client first)	*We really do everything with that in mind. So I think that is hopefully themed through when we're developing policies and procedures, and the internal communications. It's all about putting the client first at the centre, and what's best for the client not what's best for self. (L3)* Others: M1, M2, M3, S1
			Person-centred care can improve client satisfaction, rehab uptake and use	*I guess working in other places that I don't think were particularly patient centred, the satisfaction rate of the client seems to be much lower. I think the uptake of rehabilitation is lower. I think of the client's we fit they, with the surveys that we get back, seems to have a very high usage rate compared to the average issues that you see in talks and conferences. (S1)*

				Others: M2
			Derived from being patient-focused	*I think in getting our market where word of mouth is very powerful, by ensuring that you lead from a concept of being patient focused, that you can't lose with that. (M1)*
			Derived from the client's point-of-view	*What did you expect you were going to get when you came here, and did we meet it? Did we exceed it? (L1)* *...at the end of the day, the patient decides, not us. They evaluate whether we've met it or not. Because I could be saying, "But we have, we have," and they go, "I'm sorry, but you haven't" (laughs) because in my mind, the equation was different and you need to work out what that is for every person. (L1)*
			Extend beyond clinical outcomes	*I am also very concerned that people are satisfied, not just in clinical outcomes, but that people feeling satisfied with the service and happy with what they've been provided, and their needs have been met. (G1)*
			Clinical processes must evolve to changing client needs	*If a little bit of the traditional way of healthcare is changing, the clients want to be involved in their choice of healthcare, and want to be involved in their journey... We haven't really moved anything, and a company that really wants to survive, and a company that really wants to continue adding value needs to understand that the buying behaviours of health customers is changing. (L1)* Others: G1, N2, U3
			Listening to clients holistically to identify their goals and needs.	*What are the needs of the patient in terms of hearing evaluation? Not only in terms of their hearing, but also in terms of their general health and well-being. So we have got a big responsibility of psychological and emotional and social well-being of the person to look for. (M3)*
			Personalised testing and care	Can include testing the ability of clients to hear in noise (N2, N3), that they are offered choice for the level of detail in their results (L3), that results are explained in a meaningful way (M1, U4). Organisations have to personalise services to each client or clients can just purchase alternatives from the internet (L2). *We listen to the client and make sure that what we do for this person is not necessarily the same as what we do for that person, (M1)*
			Providing good quality information	*The client are key. Giving good information and partnering with clients to find good solutions for them. (N1)*
			Provide effective options for informed decisions	*And providing the best service, in my view, is giving people a full range of options so they can make an informed decision and that takes the pressure off. (M2)* Others: M1, M3
			Involve clients	• The client leads, but does not direct, the discussion (U3, N3, U4) • Clinician to guide the client's free decision (N2, M4, U3, S2) *It should be the free choice of the client himself to choose the appropriate plan. The clinician can only guide in terms of needs. (M3)*
			Involve the family members of clients	*We encourage them to bring family members with them as well, so we involve the family or significant other in the process. (N3)* Others: S1
			Assess client readiness for hearing aids to achieve good clinical outcomes	Clients proceed with hearing aids only if: • They want to (N1, U3) • Have agreed to it (N1) • Are enthusiastic about commencing rehabilitation (U3) *So if they get a hearing aid, they want it. They have agreed to it, that that's the thing they need. They are not getting it because we talked them into it, or because we are just mining a government subsidy (N1)*

				Because we believe that if you rush things, you are really pushing people through to something that they are not necessarily ready for, or have agreed to, and we know that giving people that time, and not forcing them into a decision at their first appointment, means that they are more likely to be in full agreement of it, when they get around to it. I mean, what we know is, that once our clients get hearing aids, they tend to keep them. We have a very small return rate. And they tend to use them. (N1)
Financial success	How financial success is determined	Financial viability & profitability/surplus are necessary for any business		*It's really important for us to get paid. That's part of business. We're not in it for free. We're not here for loss, we need to get paid (L1)* *We had to be profitable otherwise we'd fall over. We couldn't keep operating. (U1)*
		Viability important during initial business years or for new business units		*...how do except lower margins while you build an emerging business? How do you sell that to your shareholders, and how do you sell that to your CFO, who's watching the money? And you have to sell it because you go, "Here are my success. I've got five years to build this emerging business, and these are the key milestones which I need to meet along the way." And meeting each of those is a success, although it might just be not to lose too much money in the first couple of years (both laugh), whilst you roll it out. (L1)* Others: M1, U1
		Cannot only be determined by having a busy clinic		*By the way, being busy is good. Being busy alone and having a clinic that there's people coming through the door and going out the door doesn't absolutely mean that you're making a dollar. (U1)*
		Annual financial growth	Definition	*Obviously from a financial point of view you would expect year-on-year that you continue to grow and that your revenue and your profit continues to improve. (M1)* Others: M1
			Required for organisational longevity	*This company's been around for a long time. It intends on being around for an even longer time, but you've got to invest in different things along the way, to make that happen. (L1)*
		Most dependent on the sale of hearing devices (e.g., hearing aids/cochlear implants)	Focus on sales of hearing devices (i.e., hearing aids/cochlear implants)	*We do tend to focus on the highest earning clinical pathways. The highest earning clinical pathways in audiology is private hearing aids, but also for us, in implants as well. They are very competitive areas, and they're areas that we really want to make sure that we are delivering value for those client groups in the way we work. (L1)* Others: N1
			Hearing device uptake is important because hearing aid sales are essential for financial success	*We run through a budget, make sure we have got enough money to pay our staff, to buy our new equipment, to rent our premises, and so therefore, we need a certain amount of income. So, we need to see X number of clients a year, and hopefully a proportion of those go on to buy hearing aids, to a certain value, and hopefully it all balances out in our favour. (N1)*
			Failure is when hearing devices are purchased from a competitor	*If a person is ready to get hearing aids, I want them to buy them from us. I don't want them to walk away and shop around, and then we ring them six months later, and they bought them from someone else." That, to me is a failure. (N1)*
			Hearing device sale focus can lead to clinician devaluation of their own services	*That becomes this trade-off between the client, not necessarily valuing that and saying, "Why do I have to pay for that?" Because of how our industry destroys the clinical viability of an audiologist by throwing away their services for free. It is influenced by that to some extent, where I think a lot of audiologists are quite poor at valuing themselves and feeling that they can charge for their services. As an organisation we have to be sensitive to where we draw that line. (M1)*
		Affected by different funding streams	Private paying clients are more profitable than those from other funding streams	*I guess the profit margin on our private clients is a little bit more anyway, and I guess the same with (HSP) clients that top up as well, and I imagine that's the same in any business, that the top up does give you a bit more profit. (S1)* Others: M1, N1

			Restrictions under other funding streams can limit financial viability	*Obviously from an (HSP) perspective, the issue that we have there is we don't get paid for every visit. You have limited funding under which to get a good outcome before you start to lose money. (M1)* Others: S2, N1
			Long-term view required under funding streams	*it is a bit of a swings and roundabouts sort of setup, where this person will just sail through and not cost you any angst, and pay their batteries and every year, and do all that and you'll never see them. They will ultimately kind of cover the cost of this person who wants to come in every week, with a problem and do this and do that… (M1)* Others: S2, M3
	Who determines financial success	Board of directors/senior management team		*that's determined between me and our CEO, and our Finance Manager. We run through a budget, make sure we have got enough money to pay our staff, to buy our new equipment, to rent our premises, and so therefore, we need a certain amount of income. (N1)* Others: L1, L2, G1
		Owner's goals		*I guess [the accountant's] goal is always to make it as successful and profitable as possible, which may be little bit contrary to mine. I just want to make enough to get by. (S1)* Others: S2, M1, M2
		Organisation's other endeavours	Not-for-profit goals	*Basically, we take the funds from <our organisation> and it pays the administrative costs of < parent charitable organisation >. Therefore, if people donate to <parent charitable organisation> or the <Deaf Society>, all of their donations are going to clients because we pay for our own administration. If <our organisation> doesn't make a surplus at the end of the year, then there's no funds to go into < parent charitable organisation >. That is one measure of success for sure.* Others: N1
			Large commercial organisation	*This is our obligation: We have to check our financial situation, we are not a governmental-owned business, we have to be a profitable business and therefore we have to look into these KPIs which are extremely important to the company. (L2)* Other: L1
			Universities	*…it's an understanding where if we make a bit of a loss, the university will sort of compensate us for it. If we make profit, we're handing it over to them so it's a swings and balance. The whole idea is to really try and make sure it's erring on the side of profitability just to demonstrate that we are taking care of this and operating in a fiscally responsible manner. (U1)* Others: U2, U3, U4
		Dependence on various funding structures		*…how important it's going to be, that we reach a certain level of revenue next financial year. We are losing our government funding over the next few years. So, if we want to keep the number of staff we have got, we have to make more money. (N1)* Others: U1, N2
Double-bottom line	Definition	Client success and financial success are necessary for organisational success		*The double bottom line is that we are for profit, we're not for loss, and we're a profit company, so things need to financially stack up, but just as importantly, and it truly is a double bottom line, it has to add value to our clients. It has to add value, whatever we're doing, to our stakeholders. It really is about achieving those outcomes. (L1)* Others: M1, M2, M3
		Essential for organisational survival		*Every decision that we make, we're very mindful of: are we achieving positively on both bottom lines? Because you can, particularly in healthcare, you can make a difference to your financial bottom line, but if you're not making a difference to your client values bottom line, you're not going to survive. And the same thing: if you make a difference to your client value bottom line, but you're not making a positive difference to your financial*

				bottom line, you're not going to survive. You have to really make sure that what you're doing is adding value to the client, but also financially stacks up... *When there's a mismatch between that, that's when you can spiral into problems, and they can be problems either way. It can be that you're not adding value to your clients, then you're actually diminishing your return because you won't get return business or word of mouth, and that creates basically a lack of demand for what you do and all that type of thing. At the same time, if you're not looking at your financial bottom line, and you're just doing things because it does create client value, but it doesn't bring a financial return or benefit to the company, you can't afford to keep doing it. (L1)* Others: N2
	Client success should be sought before financial success	Financial success is a result, or secondary	Client happiness should be pursued first	*As a business, obviously there's the financial side of it but that shouldn't be a driver. That's a result. You can't push financial success if you don't have happy clients. (L3)* *The business side of things is secondary in a lot of ways, so keeping our clients happy and doing our best job by them, is what we need to do. (S1)* Others: L2
			Flexibility to bend the rules within limits to achieve client success	*By seeing a client for half an hour that you might not get paid for, what you may be achieving there is another person who does not put their hearing aid in the drawer. That is gold from a perspective of continuing to advocate for hearing aid use and rehabilitation. (M1)* Others: S1, U1
		Achieving client success and can achieve financial success	Positive word-of-mouth can lead to financial success	*We do everything, in order to satisfy the customer, with his special need of better hearing. And if this we do right, we can certainly have also this economical success because then they talk about us again, they do advertising for us, they bring in more people. (L2)* Others: M1
			Potential repeat purchases due to improved client retention	*Clients that are achieving their optimum outcome, therefore they're going to see me as their preferential hearing provider. It adds another link for me to demonstrate to my clients that I have their best interests and their clinical outcomes in mind, it's going to tether them a little bit more to me, and that's a benefit to me 'cause I'll be the one that they see in five years' time when they need their new device. (M2)*
			Long-term growth and success	*In my mind, in terms of having a business and the longevity of the business, will actually follow and flow if we get that initial service right with the people that we see. (M2)* *Well at the end of the day, success is growth. If you're not growing, you're shrinking. So from my position, if this company continues to grow, then I am providing what I believe is a great model of service delivery for strong future. Because if I take the opposite, value would be that we would shrink, and value would be that we would be less relevant in the landscape, and that we could help less people. Success from my point of view is that this company continues to grow, and by what we were talking about before and the double bottom line, just that mere sense of growth means that we are delivering client value. (L1)* Others: L2, M2
		Person-centred care	Can achieve double bottom line success	*Patient-centred care… what we feel is that the patient is kept … is the most important. If there are patients we have work to do; if there no patients we have no work to do. So to keep our business viable the patient-centred care approach has to be taken. (M3)* *If you look after people and treat people with respect and do the best you can for them, then the other stuff just happens. It's okay to make money and a business needs to make money so that I can service people and still be here, but if I do it in the most respectful way without having to undermine anybody or overcharge people or sell people things, then everybody wins. (M2)*

			Is lost if financial success is pursued before client success	*We know that the patient-centred care approach is lost. The moment we start talking about just purely sales and numbers… that would be the worst case scenario. That means that your sales can go up but your patient-centred approach is lost. So, that is not the real target here. The idea is to achieve a happy client outcome rather than a number of units or a number of products that we have sold in that month. (M3)*
Broader Themes				
Organisational Ethos, Mission & Vision	Ethos	Definition		*Because if you don't have that why, you never really know why you exist. You don't know what you're doing. (L1)*
		Aspects	Caring	*It's really about caring and helping people to hear. (G1)*
			Helping people to hear	*It's really about caring and helping people to hear. (G1)* Others: N1, S2
			Putting the client first	*I think the core fundamental belief of this organisation is that we put the client first. (L3)* Others: M1
			Improving quality of life for clients	*We're trying to improve people's hearing and quality of life we want to maximise what benefit we can give them. So what they can get out of the device. (S2)* Others: L1
			Person-centredness	*I think patient-centred care is important and I guess that's part of our ethos, so we'd like to think that we do have that embedded. (U4)* Others: M2, S1, U2
			Commitment to ethical principles	*We remind our people every year (of) these ethical codes. We would be very strict if somebody would (fail). We would certainly let (them) go immediately (L2)* Others: S1
		Ethical practice	Definition	*…based on providing a genuine service to people that is not looking at trying to mislead them or trying to coerce them. I think it just stems from working with integrity and honesty and trying to instil that in my staff, that being successful and profitable does not need to be mutually exclusive with being ethical and acting with integrity. (M1)*
			Expected from all staff	*(Ethical practice is) lived here from my position, from <most senior manager> down. I cannot say, "You have to be ethical," and I can do whatever like I want. No, certainly not. You have to be an example to everybody, that they understand this. (L2)* Others: S1, M1
			Mandates a long-term view to clients' hearing rehabilitation, to achieve both client and financial success	*…it all stems from a philosophy of doing the right thing by the client, taking the long-term view and having a belief that doing the right thing by the client will pay off in the long run, rather than trying to get a quick sale out of them. (M1)* *Companies who cheat their customers, you can do it once, maybe twice, but in the mid or long-term days, there is no way out of it, yeah? (L2)*
			May result in increased costs and more expensive services compared to competitors	*People come to us because we provide good service, well we hope we do, and we're independent, we're not for profit, we provide choice to the client, we fit their needs. However, we're not the cheapest. So, it depends what focus the client has on services and outcomes or if it's a just a product and a price. (N3)* Others: N1, S1
			Aspects can include	• No sales pressure on clients (M2, M3, U4) *The clinic was founded with the idea of providing that, so providing a high quality service to clients without commercial pressure, with ongoing follow-up. (U4)* • Clients should not have to take a financial loan to purchase hearing aids (M2) *I think that is disgraceful and people going into finance when the free to client hearing aids for pensioners are high quality. (M2)* • Clients should be free to choose their required or desired device (M2, N1, N2, N3)

				But say they've got a million dollars in the bank and they're still on a part-pension and they choose a free government hearing aid, that's their choice. It's not up to us to say, "You've got money. You should spend it on hearing." (M2) • No hearing aid commissions for clinicians in some organisations (M1, N2, N3, S1) *People pay commissions, bonuses, to audiologists to sell a particular product or level of technology. So, that, I guess, compromises what the clinician is doing, it's not necessarily based on what the client needs or wants. (N2)* *I don't agree that commission-based earning is fair. I've worked in that before and it can be stressful and I feel like it does impact your clinical decisions. I've discussed it with my staff and they agree. (S1)*
			Acceptable ethical behaviours varied across organisations	Decisions of which hearing aid brands to fit could vary: • Clinician autonomy for fitting hearing aids (M1, N3) *So they are under no pressure to sell any particular product or any particular brand of product so they have the freedom to choose what they want to choose as long as they achieve the bigger picture.* In a lot of roles we will see that the clinician is supposed to sell this stock of hearing aid or this particular device which is not our goal; our goal is achieve the bigger picture rather than looking at the micro picture of each and every hearing instruments and stuff. *(M3)* • Preference for a particular manufacturer (L2) *We are not limited to the one ... however I have to say, why should we not offer our products when they are the brand newest ones. So I have no ethical problem with that. And people, we also don't put any pressure on them, but people tend to use our brands, sorry because they are just latest and the newest one with the best features. This will certainly change if we would not have this high innovation cycle. (L2)* • Team decision on which hearing aid brands to offer (N3) *I guess it is, completely up to the clinician. But what they will be providing that based on their clinical experience, and what we as a group have tried in the past, and what we've found successful and what we haven't found successful. We discuss this in our staff meetings, to review particular products, which are out on the market, we say, "We've tried this and it's been good, and we tried that it's been not very good." Opinions are shared amongst the group and that, I guess, informs some of our clinical decision making in regards to product recommendations. (N3)*
				Recommending lower versus higher end devices: • Affordability of devices (M2, M3) *I think that is disgraceful and people going into finance when the free to client hearing aids for pensioners are high quality. (M2)* • Balanced against recommending higher-end devices (N1, N2, L2) *I would strongly encourage any of my clinicians to offer high-end hearing aids to anybody, because I do personally think they're better. But, if your goal is to watch television and sit by yourself all day, it's certainly not necessary. It would never drive me to sell or not to sell, the person in front of me is what drives my discussion. I would like to trust my colleagues to do the same. (N2)*
	Mission	Definition		*The whole idea is to keep us remembering that the reason we're here (L1)*
		Common aspects	Making a positive difference	*Making a positive difference in people's lives, that's our mission, and that's what we get out of bed for. If we're not making a positive difference in people's lives, we need to evaluate what we're doing wrong (L3)* Others: G1, L1, L2

			Building a relationship with clients and supporting them	*Developing a relationship with clients. Ensuring that they have all the ... Yeah, that we develop a rapport with our clients and a trusting relationship even if it's simply the case that someone's come for an assessment and then they may need to go back to or be referred to an Ear, Nose and Throat specialist and there's not a rehabilitation pathway. (U4)*
			Creating a good client experience	*It's not about marketing what you do, it's about understanding their experience and shaping the experience to what they want. And there's a subtle but distinct difference in the two. (L1)* Others: U4
			Provide high quality services consistently	*Our core statement is to provide quality services to every client, every time, so that's our, I suppose you call it the mission statement. It's to be consistent and of high quality, for high quality outcomes to elaborate on it further. (M2)*
			Affordability	*That's what we have always said. That it has to be… the quality of service ... the delivery of services, and the affordable delivery of services. (M3)*
			Evidence-based clinical practice	*The most important things to me is, I would say, professional and ethical behaviour of staff. And high client satisfaction levels. I think evidence-based practise would be probably the top of all of that. (N2)* Others: G1, U1, L2
			Have new technology and innovate	*Especially in a company like ours. Our competitors have nothing new for six, seven, eight years, you don't have to look out for new products. When you're in a very positive situation that I have new technology every second year. Every second year, every two years, I have a new technology in my hands. (L2)* Others: L3
	Vision	Definition		Describes: *why I am here and where are we going (L1)* *Understanding that we probably may never reach it, but it's always going to be something that we aspire to do. (L1)*
	General observations on ethos, mission and vision	How they are determined	At the creation of the organisation	*<Organisation> was actually made to look after Veterans after WWII and very shortly after that, children. Those specialised populations have been there from the beginning and that's sort of continued through. (G1)* Others: M1, M2
			Sometimes reviewed periodically	*Yes, I review things like that. I reviewed it only two months ago. I was reviewing our business plan and having a look at some management structures and some policies and procedures and I had a good look at that and I still liked that statement, so that core statement still represents who we are and what we're trying to achieve. (M2)* Others: L1, G1
			Difficult to maintain with each additional staff member	*I'm very keen that our clinic maintains the ethos, and I guess that's more difficult to do because it's not just me anymore. (U4)* Others: M1, N2, S2
		Can be used as a point of difference	Attracting clients	*I have a very strong view that the way I do business is extremely different to a vast majority of the industry. I have a very strong view that our patient centred care is at the high-end and that the vast majority, not necessarily private practise but certainly the other major places, are at a very low end... (M2)* *That's our point of difference here, is making sure we're more client focused and performing ethically in that manner. (N3)* *It's a point of pride that we don't, and we push it a little bit on our website, saying, no commissions paid, because it's a point of difference. (N1)*
			Attracting clinicians/staff	*I think that a lot of people that end up working here, come here because they've come from roles that they have felt pressured and they have felt that their own ethical behaviour*

				might be compromised. I think that, in some instances it's not hard to bring people on board in that way, because they are looking for that. That's why they come here. (M1) Others: L3
		Can be comparable for similar organisational types	Government/Not-for-profits	• For the vulnerable or local deaf communities (G1, N1, N2, N3) *The ethos? It's really about caring and helping people to hear. Providing a range of solutions to people, assistance to people, but also a very strong feeling of looking after the most vulnerable in the community (G1)* • To achieve broader organisational goals (N1, N2) *We are trying to cover our costs, and hopefully at the end of the year have a bit of surplus to give back to <Parent Company>. (N1)*
			Independent clinics	• Maybe to pursue more ethical practice (M1, M2, S1) *To do things, what we feel is the right way, the ethical way, to follow best clinical practise. (S1)* • Service local area (M1) *providing a service to my hometown, that my family's been for 60 years.(M1)* • Pursue owner's personal goals (M1, M2, S1, S2) *I wanted to create a job that was suited my family, and my kids. (M1)*
			Universities	• Provide student placements for the University (U1, U2, U3, U4) *That we are able to meet - this will be different to anyone else out there… the university student placement requirements (U2)* • Provide research opportunities (U1, U2, U3, U4) *To be able to provide good clinical research opportunities, to give our patients access to those projects, but more to give the researchers access to our large patient cohort potentially as well. (U2)*
		Affects how success is perceived		*Now, my core goal has to be to make a profit, but my value on what's a lot of money is quite different perhaps to a large corporation who has to show a return-on-investment to shareholders and that has to grow every year. You can't tell me that some company that spends 400-plus million dollars buying National Hearing Aids don't want a pretty hefty return on investment (M2)* Others: M1, S1, U1, L2, L3
Manager's Role within the organisation	Multifactorial role	Legal and compliance		*It's part of my job to make sure that we comply with all of the legal requirements of a company operating in Australia. A lot of contractual management et cetera that happens there. (L1)*
		Administration (maintaining all aspects of operations)		*Essentially I'm oversight for all administrative, clinical and business elements. (M2)* Others: S1, S2, M3, N3
		Financial		*The appointment of <Clinic Manager>, particularly as a clinic manager, has allowed me to really be just the financial controller and advisor if you like overseeing that and reporting back to them, and assisting wherever I can but not the critical management person of the overall clinic. (U1)* Other: L1, L2
		Hiring		*I struggle sometimes with very simple things that we have enough clinicians out in the field you know. (L2)* Other: M1, M2, M3
		Training		*I'm trying to ensure that the reception is running smoothly, and that all of the staff members are well-trained, well-performing. (U3)* Others: M2, L3, G1

		Leading	Senior and middle management teams (in charge or clinical practice, financial functions, IT or research)	*On a day-to-day, I lead the management team, and I help them in doing what their roles are. (L1)* Other: L2, L3, N2, M1, M2, U1, G1
			Clinicians and administrative staff	*We usually have two full-time audiologists working it the same time, and my role is basically just to keep everything going, so working as an audiologist as well as managing the place, everything yeah. (S1)*
		Organisational growth		*My role in this organisation is essentially strategy, so thinking about how do we, in terms of our current business, how do we do that better? How do we optimise what we're doing in our current business? But also, the second part of what I do is looking for future business. (L1)* Other: L2
		Meeting goals of the	Owner	*Because I guess it's met my goal and I'm happy with the amount of profit the business makes, I'm happy with the way that we help people and the feedback we get is I think 99% very positive, which is nice. It seems to be more positive than anywhere else I've ever worked in a similar role. I don't know if that's because I'm the person that's there all the time, that they don't own the business, but it's nice to feel like this is the best job I've ever had in the field. I guess another goal for me was to have a good work life balance, which I certainly do. (S1)* *This business is quite a boutique hearing centre for me and it will stay that way. I like being boutique. I like offering very personal service. I don't want to be a larger company. I have the capacity to do it, but I don't want to do it. (M2)* Others: S2, M1
			Board of Directors	*I mean I'm also paid according to our performance. I look also at the KPIs on the budget, I have given to the mother company in <Country>. (L2)* Others: L1, N1
			Broader organisation	*I'm looking out for the university as well as <University Company> because it's all intertwined (U1)* Others: U2, U3, U4, N2
		Outcome measurement and reporting		*I'm responsible for policy and practice for all our adult clients, outcomes measurement and reporting, Government reporting, Government relations. (G1)* Others: N2, N3, L3
		Planning		*That's essentially a big part of my job is working out, from the top down, what are the guiding principles for the company? (L1)* Others: S2, U2
		Clinical		*I also deliver some clinical services myself. (G1)* Others: S1, S2, M2, M3, U2, U3, U4
	General observations	Background affects how success is perceived	Those with financial training sought to develop the financial skills of clinicians	*I do understand when you are managing health professionals, they are strongly aligned to client value, which is great. What a great problem to have. But the same time, had to balance that with saying, "Yeah, but if you're not financially viable, you can't help anyone because you won't survive," so you have to learn to balance it. When I started with the company, the majority of the management team, all but one member was an audiologist, who didn't really have any business understanding. So to appeal to them I said, "... Just because I talk about the financial aspects, doesn't mean that I'm discounting the client value. It just means they have to be the same." It just started to give them a bit of a framework about how to make their decisions, and since then, we now have half of our team are audiologists and half of our team are non-audiologists. The ones who are audiologists are developing their business skills, both formally and informally. (L1)*

			Those without clinical qualifications or not currently practicing clinically deferred clinical decision making to their heads of clinical practice	*I'm a little less able to be so directly involved in that as I was in the past so I'm really leaving that to <Clinic Manager> and <Rehabilitation Manager> (U1)* Others: N2, L1, L2
Staff Factors	All staff members are important for organisational success			*The audiologist, the clinician, all our staff are really important as well: so the clients and the staff both have a focus in success. (G1)* Others: L1, M3
		Symbiotic relationship is needed between clinician and administrative staff for client and financial success		*The journey starts with the front of the house and it ends at the front of the house. So it is very important that the front of the house ... they're very, very passionate about what they're doing and how they're developing their rapport with the clients. And this is very important. That is why we try to put the best at the front of the house. And also the back of the house, because at the same time, you need them both. (M3)*
		Poor staff retention is expensive for the organisation – have to consider why they leave		*Well most of our audiologists come from university or the big graduate intake programme. You put a lot of time and energy into developing them, you want them to then go on to potentially one day sitting in my seat. You need to build that, and you do worry if you get a lot leaving in that three to four year mark. That tells you they're not engaged, that they're looking for something more. (L1)* Others: M1
	A workplace for the benefit of all staff	Senior managers determine the culture	Seek to provide a positive workplace for staff members	*To think that I'm providing a positive, healthy workplace for people, is one of my biggest motivators for doing this (M1)* *It's having a stable business that will be around for a long time so my staff have continuity of employment and feel comfortable here. (M2)* Others: G1
			Commit to developing staff members	*We really look to develop our clinicians. And I think in previous jobs those that were doing well got left behind, because they were just doing well, and they got forgotten and we would be focused on the low end. So we really try and make sure every clinician has development goals. (L3)* Others: M1, M3, N2, N3, S1
		Manager's own happiness and goals are important too in smaller organisations		*Just having a happy workplace, staff being happy to come to work… all staff: I've got to be happy as well. (S2)* *If I didn't have a good work life balance, I probably wouldn't do the job. (S1)*
		Can lead to being an employer of choice for higher quality applicants		*Clinicians wanting to come work for us: because that's success as a business within the industry is seen when you've got people who want to come and be on your team. (L3)* Others: S2, M1, N2
		Staff may choose to work for an organisation for non-financial reasons		*I think for a start, I know for a fact that people could jump ship and go to somewhere where they could get paid more. I think part of that is because they want to have work in an environment where there is more focus on the client and being honest with the client. (M1)*
		Can lead to staff retention		*(They) believe in what we're doing, and they see a career future with you as a professional. (L1)* Others: G1
		A person-centred approach would lead to clinician professional satisfaction, growth and development		*For the growth and development of our organisation, patient-centred care is the best approach and will give our clinicians a lot more comfort and satisfaction… The clinicians derive professional satisfaction in the profession that they work in if the patient-centred approach is being met by the clinic. (M3)*

	For staff to work at their best, managers want staff	To feel valued	Rewards and recognition	• Non-financial rewards e.g., vouchers, meals, holidays (L3, M3, N2) • Organisational-wide recognition using cards, gifts or awards (L1, N2, N3, M3, S2) • Managers may connect regularly with staff in smaller organisations (M1, M2, S1, S2) *I just make a point of actually speaking to every staff member every day. (M2)*
			Opportunities to advance (in larger organisations)	*It's probably more the opportunities because that can be quite a wide range… if they're interested in moving to a more senior position, so again, that's sort of a financial and if they actually want to go for a specialist role for example, we'd be looking and saying okay, how did they go on their performance review in all those different areas* Others: L1, L3
			Learning and development	*We really look to develop our clinicians. And I think in previous jobs those that were doing well got left behind, because they were just doing well, and they got forgotten and we would be focused on the low end. So we really try and make sure every clinician has development goals. (L3)* Others: N2, N3, L1
			Financial renumeration	• Provided especially to staff with junior/middle management responsibilities (M1) • Not always tied to sale of hearing devices (S1, M1) • Can be affected by the professionalism of staff (M1) • Affected by meeting KPIs in some organisations (G1) • May need to be justified by the clinician (N1) • Salary increases are a privilege and not a right (M1) *A salary increase is a privilege not a right, and that's one of the challenging things to convey to people… Again, I have a real beef with the salary expectations of audiologists versus what the public expects to pay for our services. (M1)*
		To feel Happy		*It's critical that they're feeling happy in their position and that no one is being put upon to do more than others in a similar position. (U1)* Others: S2, M1, L2
		To feel cared for		*One is that we're caring. So, we care for each other, we care for our clients. (N3)*
		To be motivated		*I believe in it that when people enjoy it here, they are highly motivated and then they are at their best ... at their best level of working. (L2)*
		To be pressured to perform, but not by too much		*I put lot of pressure on them. Yes of course we have a certain pressure, we have commitments to the investors, we have commitments to the top management, in this respect we are like another company otherwise we wouldn't be that successful. However, people should enjoy being here… If there is pressure all the time, people can stand maybe a couple of years, but then they will leave. (L2)*
		To feel trusted	Clinicians treated as individualised	*I think I'm trusting all the clinicians to use their clinical decision-making skills. I'm not didactic or draconian in what I say. I think I respect everybody's clinical ability, and fortunately, we've got a clinic here where everybody is good at making clinical decisions, and nobody displays any hesitation in what I perceive the right thing to be. I think we will all do things for the same reason, so we'll all do what we feel is most appropriate at that point in time. (U3)* Others: U2, M3
			Have autonomy (within pre-determined boundaries)	• Waive fees (L1) *The audiologists have the discretion to discount. They have the discretion to not charge. (L1)* • Book more or longer appointment (S1, M1, M2)

				they need to have a certain amount of autonomy in what they do, so they know that if they have a particularly difficult client or a high needs client, that they can book a double appointment with them: If they need two hours instead of one that's fine, whatever they need. Look I keep an eye on it to make sure not every appointment is two hours long, but I think these are reasonable people that I work with, they're well educated, they've been to the conferences, they know about patient centred care and they know the principles behind it. Being flexible in what they can and can't do helps them in that regard I think. (S1) • Discretion not to fit particular clients *I think that giving the audiologists the scope to fit what they feel is clinically appropriate to the client or not fit them at all (M1)* • Discretion to fit different brands (S1, M1, M3, N2, N3) *They are under no pressure to sell any particular product or any particular brand of product, so they have the freedom to choose what they want to choose as long as they achieve the bigger picture. (M3)* • No commission for hearing device sales for ethical reasons (M1, S1, N2, N3, U2), or to reduce stress for clinicians and remove the impact on clinical decisions (S1)
		Feel listened to	Open-door policy with senior managers	*And ideally, we don't like to see these annual performance reviews as the only time that clinicians will bring up any issues or barriers with us, we'd like to have ongoing communication during the year. We tell our staff that when it comes to performance reviews, we don't see it as a time to air out all your grievances at once. I mean, if you do have an issue or problem, you need to let someone know straight away rather than letting it build up to the performance review time to bring out these issues. (L3)* Others: L2, M1, N3
			Have a voice in the organisation	Such as by participating in representative panels (G1, L3): *We have groups within the business that are consultative groups. So we have a panel of clinicians who are like a voice for their regions. We have specialist groups for particular products or training areas so that we're getting input from the clinics. (L3)*
			Concerns will be taken seriously	*…because I found in the past that those things aren't generally taken lightly and that when people do come to me with a concern like that then it's a serious and valid concern, and not "it's because I didn't like that skirt she was wearing yesterday…" (M1)*
	Staff expectations	Qualified		*We have professional memberships, that we have got university Masters degrees (S1)* Other: N2
			Engaged in ongoing professional development	*Everyone has to keep up their professional development (N2)* Others: N2, S1, M1, L3
			Clinicians must share professional development learning with colleagues in some organisations	*Each event - any (professional development) that we pay for - you must present to the <organisation>, so that's not a measurement but it is a requirement. (N2)* Others: N1, S1
		Technical skills		*…to tune the product, to fit the product in the right way (L2)*
		Communication skills	Be able to explain technical aspects to various clients	*This is a beauty; I mean, I really cannot think of another job, and I'm very serious, where you bring this expertise of IT or computer expertise together with social capabilities. (L2)* Others: U1, M1
			Engage clients on a level that they're happy with	*I think if someone's prepared to come along to see a professional expert in a particular field, they're already going to accept whatever your advice is and it's rather than the cleverness or the thing that wins patient trust is that you engage them in a way on a level that they're happy to engage in so they feel fully informed and they feel comfortable making an informed decision. (U1)* Others: N1

		Professionalism of staff valued	Considered ahead of selling devices	*Just because you're a good salesperson, doesn't mean you're good at rehabilitation. An employee might sell the most units, but your clients might be the ones that put them in the drawer the most device, and we don't know that necessarily. (M1)*
			Aligned to the organisation's ethos, including ethical practice	*The most important things to me is… professional and ethical behaviour of staff. (N2)* Others: G1, M1, L1
			Putting the client first	*It's all about putting the client first at the centre, and what's best for the client not what's best for self. (L3)* *Others: N2, N1, M1*
			Preferred staff qualities	Can include: Reliability (M1), organised (M1), good administrative skills (M1, M3), timely reports (N2) team player (M1, M2), confident (M3), passionate (G1), takes the initiative (M1), takes responsibility for themselves (M1). *I think we look at other aspects of being in terms of being team players, reliability, turning up on time, documentation, all the things that go towards being a good audiologist that aren't translated into how many units you sold last week. (M1)*
			Can affect renumeration	*If someone has gone above and beyond their role, then we're going to look at giving them a higher pay rise than the person who has just literally turned up and done their job and not demonstrated any initiative or be a team player or anything like that. (M1)*
			Difficult to hire based on desired attributes	*I don't think we specifically hire based on that attribute; I don't know if that's something you can advertise for. I think you can get an idea about what somebody's ethical fibre is made of… you can get an idea about their clinical philosophy just by discussions you've had with them. It's not something that we've put into interview questions, but I think you can just tell from the type of person that they are. (U3)*
	Difficulties	Misalignment	Failure to adhere to ethical principles	*We remind our people every year (of) these ethical codes. We would be very strict if somebody would (fail). We would certainly let (them) go immediately (L2)* Others: S1
			Not delivering on client success	*I would take poor satisfaction scores very seriously. I think that would be something that would be actioned on a personal level, so it would be a matter of sitting down with the individual and really getting to the bottom of what's happening. If there really was an attitudinal issue, it would potentially become a performance management situation, depending on what was causing those scores. (L3)*
			Staff who refuse to align with the organisational ethos	*I'll be frank with you and tell you that staff are the biggest challenge of running a business…because apparently, I'm supposed to be able to read everyone's minds and know exactly what everyone is thinking, feeling, hating, liking. (M1)* *I don't ever think that you're going to get 100% of people aligned all the time. (L1)* Others: N1, U2
		Rectification/dismissal	Receive training	*Poor financial results would be a matter of rallying the troops in a way to say, "Okay do you need more marketing, do you need more training, do you need ... what can we do to get you out of this rut that you're in?" (L3)*
			First given fewer opportunities to practice or role will be changed	*… but over time I think there'd be less opportunities provided and managed out of those sorts of scenarios where that bad patient care or lack of interaction, whatever. You know what I mean? No, you don't know what I mean. I try to minimise the impact of that, one way or another, changing duties, changing roles. (U2)*
			Managed out quickly to protect the organisation and other staff members	*I'm personally a very big believer in moving to formal counselling, and if needed, termination, more quickly than slowly. The reason I believe that is if you don't deal with poor performance from a team member, it sends a message to the rest of the team that this poor performance is acceptable to the company. Therefore, it lowers the bar for everyone. You have to send a message quick, and be consistent: "No, this isn't good enough." (L1)* Others: M1, U2

8.4 Template analysis summary table of how senior managers evaluated success across core and broader themes

Theme	Sub-theme	Category	Sub-category	Reference *(Note: participant codes explained in section 4.2.2)*
Core themes				
Client success	Choice of evaluation measures	Chosen by		Owner-operator (S2, M1, M2, M3) Team consensus (S1, L1) Senior manager (L1, U1, U2, U3, U4, G1) Delegated to middle manager (e.g., Heads of Clinical Practice in larger organisations) (N2, L2, L3)
		Based on		Knowledge and experience of senior managers (S2, G1) Funding system (HSP) requirements (S2) Suitability for the Australian context (M3) Contributes useful new information (S2) Benefits outweigh analysis and administration costs (S2) Utility for benchmarking internally or against survey norms (M2, S2, G1)
	Choice of non-evaluation	Reasons		Informal evaluation methods in use are adequate (M1) Simply cannot measure everyone coming in (L2, M1) Time constraints (M2, N3) Clinical standards and processes are already effective and thus do not need formal evaluation (M1, U2, U3) Already effective at client success so no evaluation needed (U2, U3)
	Who is evaluated			All clients (N1) Hearing aid adopters only (all except N1) Note: Non-adopters of hearing aids not formally assessed apart from client feedback
			Other client types	Universities: Students through surveys or feedback to the course coordinator (U2, U4) Medical practitioners who refer to the organisation (L1) Receivers of State/Federal funding: interactions with clients they were funded to serve (G1, N1) e.g., clients with multiple disabilities, the Deaf community, local hearing screenings
	What is evaluated	Client goals and needs	When	Initial assessment appointments only (U1, U2, U4) Initial assessment appointment and after rehabilitation (M3, S2, U3)
			Assessed using	COSI (most) PACA (N1) Ida institute tools (M3) Client intake interview (S2) Hearing aid decision aid (M3) PEACH for clients with low cognitive ability (G1) Focus groups (G1, L1) to assess the client experience or how to improve services
			Checked using	Clinical notes audit (N1, N3, L1) – may be internal (N1, M2) or external (N1, N2) • Clients may be interviewed as part of audit (N1) • Limited by clinician ability or recall (M1, N3) • May include an audit for client goals being met (M2), clinician adherence to organisational processes (N1) and if choice was given to the client (N1). May also assess family member attendance (N3).
		Client and family member experience of care	Obtained by	Informal questions asked by clinicians and reception staff (N2) Feedback cards at the reception desk (L2) Electronic feedback (U2) Recording of client enquiries/questions at reception desk (N2)
		Word-of-mouth	Assessed by	Net promoter score (NPS) (L3, M2) Recorded referral source of new clients

				• May include assessment of trends and identification of key referrers (clients or doctors) (L1)
			Action	Poor NPS – clients contacted by the organisation to resolve grievances and mitigate negative word-of-mouth Reduction/cessation of referrals – doctor contacted to understand cause (L1)
		Hearing device satisfaction, usage, benefits and ongoing difficulties	When	Two to twelve weeks following hearing device fitting (M3, S2) Or when the client is reportedly happy with the device (M3)
			Assessed using	IOI-HA (G1) HAUQ (G1) EARtrak if cost was not a barrier (N1, S1, U4)
			Action	Difficulties followed up with client (M1, M2) Questionnaire return rate of approximately 20% (L1)
		Long-term success	Assessed busing	Client retention • Those returning for annual visits (L1) • Transferring clients (HSP) (out vs in) (L3) • Clients who transfer in (assume for superior service) (L2, M2) Full client diary (U2, U3)
			When	Monitored regularly (M2, U2) Formally evaluated annually (L1)
			Action	Falling client retention will lead to an exploration of why clients have left (L1) Low client diaries will be actively filled by means of marketing (M2, U2)
Financial success	Financial viability	Assessed	When	Crucial during early days of organisation (M1, S2) When introducing new services (M1, U2, L1)
			Using	Profitability/surplus (M1, S2) Positive cash flow (M1, S2) Agreed plan that enable the service to be introduced (L1, M1)
			By	Owner/senior manager and/or board of directors
	Profit/surplus	Definition		Positive difference between total revenue received and total expenses incurred
		Goals determined by		Organisational ethos, mission and vision Smaller organisations: Owner/accountant (M1, M2, S1, S2) Larger organisations: Determined annually/biennially with senior management's strategic plan or consultation with Chief Financial Officer (L1, L2, N1, N2, N3) Universities: Agreed in conjunction with the University (U1, U2, U3, U4)
			Benchmarking	Difficult for small to medium size organisations to benchmark externally (M1, M2, S2). Hence, they may benchmark internally against previous performance or desired levels of financial success and growth (M1, M2, S1, S2). Large organisations may benchmark against similar organisations on using their share price (L1, L2)
		Achieved by		Increasing revenues Lowering or maintaining costs
		Assessed	Using	Gross profit figures (U1) KPIs for revenue, expenses and profitability (L1, L2, L3, G1, N1, N2, N3) "Gut" feeling (M1)
			When	Regularly to ensure goals were met and to rectify any identified issues (L1, L2, L3, S2, G1, N3) Not regularly evaluated (M1, U4) due to greater focus on client outcomes
			By	Self (S2, M1, M2, M3) Accountant (S1, S2) Middle management (L3) Chief Financial Officer (CFO) (L1, U1)

			Special considerations	Universities prioritise student placements and research goals ahead of profitability (U1, U2, U3, U4) Smaller organisations may prioritise the owner's personal goals (S1, M1, M2) KPIs can tend to be output-focused and not outcome-focused (N2), so do not overuse. Consider the trend instead of absolute values (L1, L3) Avoid analysis paralysis from having too many KPIs (L3) Organisations may use profitability targets and may choose to either reveal these targets to their staff (G1, L2) or not (M2, U3) in the pursuit of client and financial outcomes.
	Revenue	Source		Primarily from sale of hearing devices: hearing aids and cochlear implants (L1, N1) Also from services provided (M1, N2)
		Directly related to hearing devices	Assessed using (higher values better)	Number of hearing devices sold Average selling price to the client Top-up rates (number of HSP clients who chose to purchase higher valued hearing aids) Hearing device uptake/conversion rates (number of attending clients who proceed to obtain a hearing aid) Hearing aid return rates Average device revenue per clinician/administration staff (M2, M3)
			Assessed by	Several managers monitor KPIs regularly as part of profitability evaluation (L1, L2, L3, N1, N3, M2, S2) Other managers delegate assessment to their accountant (M1, S1)
		All other measures	Assessed using (higher values better)	Number of new clients Number of new hearing assessments Number of returning clients (predictor of future revenue in replacement device sales; positive word-of-mouth referrals) (N1, M2)
			Assessed by	Reviewing clinical diaries (U2, U3, M2) to ensure they are full
			Caveats	Full clinical diaries may generate revenue but did not necessarily lead to profitability (U1) Only organisations that unbundle their pricing of devices and services can easily distinguish their revenue (M1, N2)
	Expenses		Managed by	Ensuring resources (clinicians, equipment, clinical space) were fully utilised (L1, M1, U2) Minimising unfilled clinical appointments (bearing ongoing staff wages and other operational costs) (L1, U2, U3) Low percentage of aged (i.e., non-paying) debtors (L1)
			Achieved by	By filling clinical diaries (M3, U2) By ensuring clients pay for services on the day (L1)
			Assessed by	Tracking and reducing the number of clients who did not show up to appointments (N2) Easier to track within unbundled model by separating device from service costs (M1, N2)
			Caveats	Client needs are prioritised ahead of financial expenses (S1, S2, M1, M2, M3), but within limits (L1, U1, S1)
Double bottom line success	Assessed by	Achieving client and financial success requirements		Meeting pre-determined criteria of client success and financial success (L1, M1, M3, S1). For example, client success KPIs such as having higher percentages of clients satisfied with their hearing devices or having high NPS scores may be used to drive financial success.
		Organisational Growth	Assessed by	Annual increase of • Client numbers (L1, M1) • Revenue (L1, M1) • Profitability (L1, M1)
			Requirements	Respond to trend data instead of absolute data values (L1, L2, L3, S2) Expect staff to generate similar financial figures over time (M2, L1, L3)
~~Broader Themes~~				
Ethos, Mission and Vision	Staff alignment to ethos, mission and	Assessed by		Day-to-day observations by owners in small businesses (M1, M2, S1, S2), such as the professionalism of staff (M1) Annual reviews (L1)

	vision including ethical behaviour			Formal surveys (L1, N2) such as the Voice Climate Survey (VCS) Signed agreements (L2, S1) Clinicians meeting organisational goals around client and financial success Entry interviews may assess ethical fibre of potential staff members (M1, U3), although this was difficult (U3)
		Considerations		Difficult to achieve alignment with each additional staff member (M1, S2) Large organisations target at least 80% staff alignment within the organisation at any time (L1)
		Failure/misalignment		Discussion with staff member to ascertain reasons for misalignment (S1). If misalignment persists, it would lead to the staff member being managed out quickly to protect other staff (L1, M1)
Manager's role within the organisation	Determined by	Organisational type	Smaller organisations	Self-determined by owner-operators of small to medium organisations based on owner's personal goals (S1, S2, M1, M2, M3)
			Not-for-profits	Meet financial budgets to provide surplus for the parent organisation to achieve their broader goals (N1, N2, N3)
			Federal/state-funded organisations	Meet stipulated goals as part of access to funding (N1, N2, G1)
			University clinics	Having adequate student placements, positive student experience and meeting university research goals without a financial shortfall (U1, U2, U3, U4).
			Large organisations	Meet financial goals promised to the board of directors such as profit or share price targets (L1, L2)
Staff factors	Feelings toward the organisation	Assessed using	Formal methods	Voice Climate Survey (N2) Annual performance reviews (G1, N3)
			Informal methods	Daily phone call or observation from senior manager (S1, S2, M1, M2) "Staff drinks" to celebrate successes (U1, M2) Informal "office vibe" in the workplace (M1) – including if staff members socialised outside the workplace "Open door" policies (L2, L3, N3, M3, U1) as a means for staff to voice grievances as they arose
		Action		Changes to workplace based on staff feedback (N2) Manage staff grievances (M3)
	Clinical performance	Assessed by		Meeting organisation-determined client and financial goals/KPIs (N2, N3, L1, L2, L3, G1) • Client success prioritised ahead of financial success (M1, M3) Video observation (M3) Staff performance not evaluated through the use of KPIs (S1, S2, M1, M2, U1, U2, U3, U4), to allow them to focus on clinical performance (M2)
		Not assessed in some organisations		Due to perceived level of staff quality (U2, U3) Due to perceived efficacy of organisational clinical processes for achieving client and financial success (M1)
		Assessed during		Annual reviews (G1, L3, M1) One-to-one informally (M2, U1, U3) Internal or external audits (L1, N1, M3) Observing one appointment per clinician annually (N1)
		Action		Poor scores will result if different actions. For example (L3): • Poor client satisfaction scores may involve a meeting with the clinician to find out the cause • Attitudinal issues may lead to a performance management situation • Financial issues may involve "rallying the troops" by motivating staff, providing support and/or training.
	Professionalism	Assessed using		Formal or informal feedback provided by clients or other staff members (M2, M3, L2, U2) Casual observations of staff by senior or middle managers on-site (S1, S2, M1, M2, M3) Review of clinical notes (M2, L3)
		Action		Initially, a discussion with the staff member (S1). Persistent misalignment may result in dismissal (M1, L1).
	Ethical behaviour			See *Ethos, Mission and Vision*

	Alignment with organisation's ethos, mission and vision			See *Ethos, Mission and Vision*
	Learning and development	Organisation-determined	Reason for provision	Considered critical knowledge/development for all staff (N2, N3, S1, M1, G1)
		Mandated for individual clinicians	Reason for provision	Training to improve poor performance (L3, M2, N1)
		Chosen by the clinician	Reason for provision	Reward for meeting clinical performance goals (L1, L3, G1)
			Goals identified during	Annual reviews (L3, G1)
			Goals assessed during	Informal conversations (L3) Annual reviews (L3, G1)
			Other expectations	Present learnings to colleagues (N2, S1) Professional development report required for pay rise (N2)

8.5 The perceived facilitators or and barriers to person-centred care evaluation as reported by senior managers of hearing rehabilitation organisations, in the context of the COM-B model

COM Theme	**Sub-theme (Facilitator: F; Barrier: B)**	**Example Quote *(Note: participant codes explained in section 4.2.2)***
Physical Capability		
	F: Know who to ask	*That's what I'd do. I'd write to <University Professor> and say, "<University Professor>!" I would! So I'd ask people who knew. I'd ask NAL, I'd ask <University Professor>, I'd ask other people who had done it in a more research environment how I was going to adapt that to a clinical environment because that's what I do. (G1)* *I think we are evaluating it but I'm not 100% ... actually I don't know in what way, so I don't want to give false information so, <Clinical Leader> will be the perfect person, she can immediately answer that question. (L2)*
	F: Know where to look	*Look I would probably start as I said with the Ida institute. I'd probably be in touch with <University> just because they have some fantastic stuff there, and I have contacts at <University> that would allow me to do that. Also, <Manufacturer>'s Corporate Training and Development have some stuff. (L3)*
Psychological Capability	F: Can describe PCC evaluation methods	*I guess you would have to define what the clinic thinks that is. You would have to either assess each clinician with their clients. I guess you could either self-report. Otherwise, you'd have to record each appointment and then get an independent opinion on whether or not they're performed person-centred care. Secondary measure would be to actually ask the client, send out a letter or form or interview the client and see whether they feel like they had control or choices about their own care. (S2)*
	B: Lack of knowledge about PCC evaluation	*... there's about four of them. You mean the difference, the COSI and the ... what's the other ones? No. Off the top of my head, no. (M2)*
	B: Client decides what PCC is and not the organisation	*…at the end of the day, the patient decides, not us. They evaluate whether we've met it or not. Because I could be saying, "But we have, we have," and they go, "I'm sorry, but you haven't" (laughs) because in my mind, the equation was different and you need to work out what that is for every person. (L1)*
	B: Unsure if PCC can be successfully evaluated	*I will even say it's impossible... Unless you do – phew! – really a very, very detailed questionnaire which you actually have to do with every patient. (L2)*
Physical Opportunity	F: Have financial resources available if evaluation is appended to current tools	*Absolutely if there was a tool that was available that could be rolled out within our current software (L3)*

	F: Questionnaires could be easier to implement	*In terms of a questionnaire, I think that would be quite easy to implement. (U4)*
	B: Video-recording might be too expensive	*Well, I guess it's answered in a sense but if you're looking at videoing, currently we don't really have the resources for that. (U4)*
	B: Video-analysis may be too time consuming	*If I was to record each appointment and then have to listen back to it and decide whether or not that person was offered PCC... Unless there was a serious problem… and then I probably wouldn't do it that way anyway. Would be much easier and quicker to probably survey the client or patient and ask them their opinion. (S2)*
	B: Not enough time to evaluate PCC due to other tasks	*Do I have enough time to do that? I'll probably have to say: "No". Should I spend more of the time I have doing it? I should probably say: "Yes". (N3)*
	B: Practically difficult to evaluate some aspects of PCC	*But when we came to review the notes, not everyone will recall whether a family member was present during that goal setting, so it was very hard to measure. So that's something that we'll reflect on, maybe improve upon in coming years. So that was the goal, but we had no real way to measure it. (N3)*
	B: Cannot physically evaluate every person that comes through the door	*We don't monitor or seek the feedback from someone who has purely just come for a hearing test... There is no formal method of seeking feedback for those people, partly because we have a lot of clinicians, we can't be monitoring every single person that comes through the door. (M1)*
Social Opportunity	F: There is staff support if buy-in is sought	*Well, I think I need buy in from the clinicians. That would, I guess ... I'd involve them in the process. So, if you are looking at evaluating patient centred care, maybe getting them to look at different models they would use to do that. So, get them invested in the process. (N3)*
	F: Clinicians are open to file/appointment diary reviews	*For my other clinicians, I go through their diary and I have files pulled and I assess their files, whether they do or they don't know, and they don't care anyway. (M2)*
	F: Senior management support is available for PCC evaluation	*Yep if it was something I decided because I can make that decision, and I would present it to the leadership team as something I felt we should do, and generally they're pretty happy to be guided by my opinion. (L3)*
	F: Could delegate PCC evaluation to other staff	*I'd get my research office work works right upstairs. I'd say to him, can you do a lit review for us on evaluation of PCC, and he'd have it to me with a week. That's why you have a research officer. (N2)*
	B: Clinicians were resistant to in-the-room observations	*They were completely uncomfortable about it. They thought that that wasn't fair on them, you know? It hadn't been part of the way they had worked before… Nobody has refused. Some of them have just been grumpy. (N1)*
Automatic Motivation		
Reflective Motivation	F: PCC evaluation is needed to understand the clients' needs (beliefs about PCC)	*Why do you say it is important to evaluate? Because that's exactly what we're trying to do. To make sure everything is revolving around the client and the clients' needs. I mean, that's why they come here, it's all about the client. So, if we're not addressing their care or their needs then we're not achieving what we want to do as a mission. (N3)*
	F: PCC is important and needs to be evaluated	*Yes, it's highly important. If you get it wrong there'll be a tapering period, but we'll eventually go out of business, so if we're not doing it right, and the only way we know we're doing it right is measuring it. (M2)*
	F: PCC needs to be evaluated to facilitate change	*We've got clinicians practising as long as I've been alive, and to tell them that things are different, they need to understand the why. So I think for us to evaluate not only ensures we're providing it, if we evaluate it, but it gives us information to then present to those people that may question what it is. But I also think that by evaluating it, it gives some clarity around what good patient-centred care is… Like when our coach has sat it on appointments, she's done pre-appointment discussion with them, and got quite a lot of pushback. At the end of the appointment she said to them, "You're just giving it a different name", so I guess that would be if we were able to evaluate it would give us some information to say, "Hey, what you're doing is patient centred care, and you're doing a great job". (L3)*
	F: Believes that their role encompasses evaluating PCC	*Because it's my role to make sure that we're achieving our objectives, and one of our objectives is to make sure that our services are around the client. So that's why I do think it's my role. (N3)*
	B: Does not believe that the managers role should include PCC evaluation	*Well, it's not my role to police it, I don't think. It's my role to help, if somebody requests guidance or support. but I'm not in there to ... Unless there is consistent issues with performance, it's not my role to go in and tell somebody to be a different clinician than what they are, if they're being a good clinician in the first place. (U3)*
	B: Beliefs about staff competence prevents the need for PCC evaluation	*I think I would argue a lot of our clinicians were doing that maybe on an unconscious level anyway. I think that good clinicians always have… I would argue with the team we have here, that's why they're here… No, I don't monitor it. But again, I believe good clinicians are good at that. (U2)*
	B: PCC evaluation is a theoretical pursuit	*This is a bit theoretical... Yes of course in an ideal world it would be good. But then sorry, it is not so… (L2)*
	B: Choice of evaluation method may affect PCC evaluation	*And it comes back to the question about how you would do it. I guess you would ask him to self-report or ask the clients. I wouldn't have the time or the inclination to listen to a recording of the appointments. (S2)*

B: PCC evaluation is not the highest priority	*Look I personally, I have a different task. I mentioned it before. I have to make sure that the whole company is surviving and is profitable also and looking good for the future. I struggle sometimes with very simple things that we have enough clinicians out in the field you know... there are more basic problems I have, in order to just run my sites, yeah? Now you are asking me how to evaluate on each guy… (L2)*
B: Confidence in clinical practice and processes already being person-centred	*If you put those systems and processes in place that you expect your staff to follow, then it facilitates by default their ability to be client focused. If you provide them with some good written materials and reporting tools and all those things that lay them down that path simply by following what your organisations needs them to do, you get that. (M1)*
B: Not experiencing negative consequences for not currently evaluating PCC	*I guess ultimately each individual client is assessing that for themselves and if we weren't a successful business, it would mean that people are not coming back cause we're not treating them the way they want to be treated. But then that opens up a lot of other questions. (S2)*
B: Alternative measures already indicate PCC is provided	*If we are having empty diaries, and we're having unhappy patients, then we need to start looking at why that is the case, but we're not getting that at the moment. The discrete rule is in there. (U3)*
B: Current alternative evaluation methods are adequate	*I think asking the clients how their experience was and then action any concerns that come from that is the best way we have at the moment. (L3)*
B: Cannot make changes based on client feedback	*I think there's a little bit of not asking questions you're not prepared to hear the answer to as well, in terms of what can we change here based on what we might hear back. (U2)*
B: Did not want to know of PCC evaluation if changes could not be made to organisational processes	*I think there's a little bit of not asking questions you're not prepared to hear the answer to as well, in terms of what can we change here based on what we might hear back. (U2)*
B: PCC evaluation methods must supersede current alternative measures	*So is this showing us something different to something we already knew. Do we need to get rid of another report now that we have this one? So it's that sort of evaluation internally as well. Just so we don't have analysis paralysis. (L3)*

8.6 Client postal survey for the second phase (reformatted for this appendix)

(Note: Pages 228-263 displays the version used for clients seen in April 2018. Sources in parentheses)

Please fill in the questionnaire honestly and to the best of your ability. Your responses will be de-identified, and NOT returned to or accessed by <Organisation>. This questionnaire will take approximately 30 minutes to complete.

Q1 Beginning in April 2018, **WHERE** did you **FIRST** receive services from <Organisation>?

	Suburb/Town	**State**
Location of first appointment	_____	_____

Q2 Whose idea was it to make your appointment with <Organisation>?

☐	My own	☐	Carer
☐	Spouse/Partner	☐	Doctor/GP
☐	Child/Grandchild	☐	Ear, Nose & Throat Specialist
☐	Parent/Grandparent	☐	Other health professional
☐	Friend		*Please specify below*

For other(s), please specify:

Q3 Who was present during your **FIRST** appointment with your clinician?
(Select as many that apply)

☐	I saw the clinician on my own (1)	☐	Parent/Grandparent
☐	Spouse/Partner	☐	Friend
☐	Child/Grandchild	☐	Carer

For other(s), please specify:

Beginning in April 2018, we want you to think about the **FIRST CLINICIAN** whom you saw, and to rate your perception of that clinician's attitude towards you: (PLEASE CIRCLE)
(Q4-Q8 from JSPPPE)

Q4 My clinician understands my emotions, feelings and concerns.

Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree

Q5 My clinician seems concerned about me and my family.

Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree

Q6 My clinician can view things from my perspective (see things as I see them).

Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree

Q7 My clinician asks about what is happening in my daily life.

Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree

Q8 My clinician is an understanding professional.

Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree

IN THIS SECTION:
We would like you to think about all experiences you have had with the **FIRST CLINICIAN** whom you saw **o*ver the past three months***. With these experiences in mind, please indicate to what extent the event or situation has happened by ticking your response using the scale from **7 (To a Very Great Extent)** to **1 (Not at All).**
The questions in this section are expected in audiological appointments so please try to indicate the extent to which each situation occurred.
(Q9.1-Q9.34 from MPOC-A)

For example:
In the past 3 months, to what extent did the FIRST AUDIOLOGIST who worked with you...

	To a Very Great Extent 7	**To a Great Extent 6**	**To a Fairly Great Extent 5**	**To a Moderate Extent 4**	**To a Small Extent 3**	**To a Very Small Extent 2**	**Not at All 1**	**Don't Know/Not Applicable**
... provide you with clear instruction on how to complete survey questionnaires?								

Example above

- If you ticked **7 (To a Very Great Extent)**: It means that people who give you questionnaires regularly provide very clear instructions about what they ask you to do.
- If you ticked **4 (To a Moderate Extent)**: It means that people who give you questionnaires are clear in what they want you to do some of the time, and some of the time the instructions are not clear.
- If you ticked **1 (Not At All)**: It means that although you received the questionnaires, the instructions are never clear
- If you ticked **0 (Don't Know/Not Applicable)**: It means that you have never received a questionnaire so you cannot answer the question. It does not apply to you.

Q9 In the past 3 months, to what extent did the FIRST AUDIOLOGIST who worked with you... (Please tick)

In the past 3 months, to what extent did the FIRST AUDIOLOGIST who worked with you...	**To a Very Great Extent 7**	**To a Great Extent 6**	**To a Fairly Great Extent 5**	**To a Moderate Extent 4**	**To a Small Extent 3**	**To a Very Small Extent 2**	**Not at All 1**	**Don't Know/ Not Applicable**
1. … help you to feel competent in managing your own care?	□	□	□	□	□	□	□	□
2. … make sure you have a chance to say what is important to you?	□	□	□	□	□	□	□	□
3. … provide you with written information on what you are doing in rehabilitation?	□	□	□	□	□	□	□	□
4. …trust you as the person who knows yourself best?	□	□	□	□	□	□	□	□
5. … provide a caring atmosphere rather than just giving you information?	□	□	□	□	□	□	□	□
6. … make sure that your health history is known to all persons working with you so that information is carried across services and service providers?	□	□	□	□	□	□	□	□
7. …let you choose when to receive information and the type of information you want?	□	□	□	□	□	□	□	□
8. …tell you about the options for treatments or services?	□	□	□	□	□	□	□	□
9. … look at the needs of your 'whole' self (e.g., at mental, emotional, and social needs) instead of just at physical needs?	□	□	□	□	□	□	□	□
10. … offer you positive feedback and encouragement?	□	□	□	□	□	□	□	□
11. … make sure that at least one team member is someone who works with you and your family over a long period of time?	□	□	□	□	□	□	□	□
12. … are polite and friendly to you and your family?	□	□	□	□	□	□	□	□

In the past 3 months, to what extent did the FIRST AUDIOLOGIST who worked with you...	**To a Very Great Extent 7**	**To a Great Extent 6**	**To a Fairly Great Extent 5**	**To a Moderate Extent 4**	**To a Small Extent 3**	**To a Very Small Extent 2**	**Not at All 1**	**Don't Know/ Not Applicable**
13. … fully explain treatment choices to you?	□	□	□	□	□	□	□	□
14. … provide opportunities for you to make decisions about treatment?	□	□	□	□	□	□	□	□
15. … appear aware of your needs as your health changes?	□	□	□	□	□	□	□	□
16. … provide enough time for you to talk so you don't feel rushed?	□	□	□	□	□	□	□	□
17. … display honesty about your condition and how it may affect your life?	□	□	□	□	□	□	□	□
18. … plan together so they are all working in the same direction?	□	□	□	□	□	□	□	□
19. … explain things to you in a way that you understand?	□	□	□	□	□	□	□	□
20. … provide opportunities for your entire family to obtain information?	□	□	□	□	□	□	□	□
21. … treat you as an equal rather than just as the patient?	□	□	□	□	□	□	□	□
22. … give you information that is consistent from person to person?	□	□	□	□	□	□	□	□
23. … make themselves available to you as a resource (e.g., emotional support, advocacy, information)?	□	□	□	□	□	□	□	□
24. … suggest treatment plans that fit with your needs and lifestyle?	□	□	□	□	□	□	□	□
25. … provide opportunities for your family to participate in decisions about your care?	□	□	□	□	□	□	□	□

In the past 3 months, to what extent did the FIRST AUDIOLOGIST who worked with you...	**To a Very Great Extent 7**	**To a Great Extent 6**	**To a Fairly Great Extent 5**	**To a Moderate Extent 4**	**To a Small Extent 3**	**To a Very Small Extent 2**	**Not at All 1**	**Don't Know/ Not Applicable**
26. … treat you as an individual rather than as a 'typical' patient?	□	□	□	□	□	□	□	□
27. … provide you with written information about your progress?	□	□	□	□	□	□	□	□
28. … have information available about your condition (e.g., its causes, how it progresses, future outlook)?	□	□	□	□	□	□	□	□
29. … provide you with written information about your hearing device (i.e., purpose, side effects, risks)?	□	□	□	□	□	□	□	□
30. … tell you about the results from tests/assessments?	□	□	□	□	□	□	□	□
31. … have information available to you in various forms such as booklet, video, etc…?	□	□	□	□	□	□	□	□
32. … give you information about the types of services offered at the health care facility or in your community?	□	□	□	□	□	□	□	□
33. … provide advice on how to contact other people with the same condition?	□	□	□	□	□	□	□	□
34. … provide opportunities for you family to receive information about your progress?	□	□	□	□	□	□	□	□

Q10 How would you describe your satisfaction with the **FIRST CLINICIAN** you saw in April 2018? (Please circle)

Very Dissatisfied	Dissatisfied	Neutral/Neither Satisfied nor Dissatisfied	Satisfied	Very Satisfied

Q11 How important is it for you to see the same clinician again? (Please circle)

Very Important	Important	Neither Important nor Unimportant	Unimportant	Very Unimportant

Q12 How would you describe your satisfaction with the **FIRST CLINIC** you attended in April 2018? (Please circle) **(from HAUQ)**

Very Dissatisfied	Dissatisfied	Neutral/Neither Satisfied nor Dissatisfied	Satisfied	Very Satisfied

Q13 How likely are you to recommend the **FIRST CLINIC** you attended in April 2018 to your family or friends? Please circle.

Not at all likely					*Neutral*					*Extremely Likely*
0	1	2	3	4	5	6	7	8	9	10

Q14 Given the cost of the devices and/or services that you received from <Organisation>, to what extent would you consider your experience to be good value for money?

Very Good Value for Money	Good Value for Money	Neither good nor poor Value for Money	Poor Value for Money	Very Poor Value for Money

Q15 Do you feel you need an appointment with your clinician soon? **(Q15-Q18 from HAUQ)**

□ Yes □ No

Q16 The thing I liked best about the hearing aid(s) or service was...

_____

_____

Q17 The thing I liked least about the hearing aid(s) or service was...

_____

_____

Q18 If I were to make a change to the hearing aid(s) or service, it would be...

_____

_____

Q19 Was a hearing loss found during your hearing assessment?

- ○ Yes, in one ear
- ○ Yes, in both ears
- ○ No

Q20 Do you have hearing difficulty?

- ○ Yes, in one ear
- ○ Yes, in both ears
- ○ No

If you answered "Yes, in one ear" or "Yes in both ears" for Q5:

Q21 How long have you had difficulty hearing?

Approximately _____ years and _____ months.

If a hearing loss was <u>not</u> found (Q19)
OR
If you <u>do not have</u> hearing difficulty (Q20) then
YOU HAVE COMPLETED THE QUESTIONNAIRE!
Thank you!
Your responses will assist the training of new graduate audiologists. Please post the questionnaire back to the
University of Melbourne/HEARing CRC
<u>by August 31st</u> using the reply-paid envelope provided.

For everyone else, please continue.

PLEASE COMPLETE THIS SECTION IF A HEARING LOSS WAS FOUND
OR IF YOU HAVE A HEARING DIFFICULTY

Q22 What did your clinician recommend to address your hearing loss or reduce your hearing difficulties? (Select as many that apply)

☐	Nothing, just carry on as usual	☐	Lip-reading classes
☐	Hearing aid(s)	☐	Partner assistance
☐	Devices to help with the TV or telephone only	☐	Mobile phone/tablet apps
☐	Communication strategies	☐	Printed brochures/information
☐	Communication training (including ACE)	☐	Support groups with others with hearing loss
☐	Group training	☐	Web-based information

For other(s), please specify:

Q23 Given those recommendations, which did you pursue? (Select as many that apply)

☐	Nothing, just carry on as usual	☐	Lip-reading classes
☐	Hearing aid(s)	☐	Partner assistance
☐	Devices to help with the TV or telephone only	☐	Mobile phone/tablet apps
☐	Communication strategies	☐	Printed brochures/information
☐	Communication training (including ACE)	☐	Support groups with others with hearing loss
☐	Group training	☐	Web-based information

For other(s), please specify:

Q24 Besides the clinician, who else helped you decide which hearing recommendation to take? (Select as many that apply)

□	No one else helped me to decide		□	Friend helped me to decide
□	Spouse/Partner helped me to decide		□	Career helped me to decide
□	Child/Grandchild helped me to decide		□	Doctor/Medical Specialist helped me to decide
□	Parent/Grandparent helped me to decide		□	Internet websites/recommendations helped me to decide

For other(s), please specify:

We would now like to know more about how you manage your hearing loss. (Please circle) (Q25-Q35 from PIHs) Partners in Health Scale: © Copyright Flinders University

Q25 Overall, what I know about my hearing loss is:

Very Little				*Some-thing*				*A Lot*
0	1	2	3	4	5	6	7	8

Q26 Overall, what I know about the treatment and management of my hearing loss is:

Very Little				*Some-thing*				*A Lot*
0	1	2	3	4	5	6	7	8

Q27 I manage my hearing loss as asked by my hearing health professional:

Never				*Some-times*				*Always*
0	1	2	3	4	5	6	7	8

Q28 I share in decisions made about my hearing loss with my hearing health professional:

Never				*Some-times*				*Always*
0	1	2	3	4	5	6	7	8

Q29 I can deal with hearing health professionals to get the services I need that fit with my culture, values and beliefs:

Never				*Some-times*				*Always*
0	1	2	3	4	5	6	7	8

Q30 I attend appointments as asked by my hearing health professional:

Never				*Some-times*				*Always*
0	1	2	3	4	5	6	7	8

Q31 I keep track of any changes in my health condition (e.g., sudden or gradual drop in hearing, pain or infection in my ears, hearing aids stopped working, problems handling or inserting my hearing aids):

Never				*Some-times*				*Always*
0	1	2	3	4	5	6	7	8

Q32 I act when I notice changes in my health condition:

Never				*Some-times*				*Always*
0	1	2	3	4	5	6	7	8

Q33 IF APPLICABLE: I manage the effect of my hearing loss *on how I feel* (e.g., my emotions and spiritual well-being):

Not Very Well				*Fairly Well*				*Very Well*
0	1	2	3	4	5	6	7	8

Q34 IF APPLICABLE: I manage the effect of my hearing loss *on my social life* (e.g., my ability to participate, how I mix with other people, and my personal relationships):

Not Very Well				*Fairly Well*				*Very Well*
0	1	2	3	4	5	6	7	8

Q35 Overall, I manage to live a healthy lifestyle (e.g., no smoking, healthy food, moderate alcohol, regular physical activity, sleep well, manage stress and worry):

Not Very Well				*Fairly Well*				*Very Well*
0	1	2	3	4	5	6	7	8

End: Partners in Health Scale:

PLEASE COMPLETE THIS SECTION ONWARDS
<u>ONLY IF</u> YOU TRIALLED HEARING AID(S)

Q36 Were you fitted with hearing aids as part of your recent visits to <Organisation>?

○ Yes, in one ear

○ Yes, in both ears

○ No **If NO, there is no need to complete the rest of this section.**

Q37 Did you obtain fully subsidised hearing aids OR did you financially contribute to hearing aids with additional features?

○ Fully subsidized hearing aids

○ I contributed financially towards additional features

Q38 Did you end up keeping the hearing aid(s)?

○ Yes

○ No, I returned one of the hearing aids

○ No, I returned both hearing aids

Q39 How would you describe your satisfaction with your **HEARING AID(S)**? (Please circle) **(from HAUQ)**

Very Dissatisfied	Dissatisfied	Neutral/Neither Satisfied nor Dissatisfied	Satisfied	Very Satisfied

---

Q40 How likely are you to recommend **HEARING AIDS** to your family or friends?

Not at all likely					*Neutral*					*Extremely Likely*
0	1	2	3	4	5	6	7	8	9	10

If you returned one or both hearing aids:

Q41 If you chose to return your hearing aid(s), please tell us the reason(s):
(select all that apply)

□	They cost too much		□	I found a better solution
□	I did not like the look of the hearing aid(s)		□	I did not notice benefit
□	The hearing aid(s) were faulty		□	Physical discomfort/pain
□	Too much background noise		□	Trouble managing the hearing aids
□	Lack of clarity		□	Trouble inserting/removing the hearing aids
□	Poor sound quality		□	Hearing aid(s) whistle (feedback)
□	Too much of a hassle		□	Advised by a family member/close friend against it
□	I did not use them much		□	Advised by a doctor against it
□	My hearing is not bad enough			

For other reason(s), please specify:

Please fill in this short FINAL section
if you <u>kept at least one</u> hearing aid

The questions in this section focus on your hearing aid use, benefit and difficulties experienced. **(Q42-Q46 from HAUQ; Q47-Q52 from IOI-HA)**

Q42 Do you usually wear...

- ○ One hearing aid
- ○ Two hearing aids

Q43 On average, how often do you wear your hearing aid(s)?

- ○ 8 or more hours per day
- ○ 4 to 8 hours per day
- ○ 1 to 4 hours per day
- ○ (Occasionally) Less than 1 hour per day but more than 1 hour per week
- ○ (Seldom) Less than 1 hour per week
- ○ Never

Q44 If you never wear your hearing aid(s), please tell us why:
(Select as many that apply)

□	I do not like the look of the hearing aid(s)	□	I do not notice benefit
□	The hearing aid(s) are faulty	□	Physical discomfort/pain
□	Too much background noise	□	Trouble managing the hearing aids
□	Lack of clarity	□	Trouble inserting/removing the hearing aids
□	Poor sound quality	□	Hearing aid(s) whistle (feedback)
□	Too much of a hassle	□	Advised by a family member/close friend against it
□	My hearing is not bad enough	□	Advised by a doctor against it
□	I found a better solution		

For other reason(s), please specify:

Q45 How much has your hearing aid(s) helped you with any of the following?

	A Lot	***A Little***	***Not at All***	***Help Not Needed***
Family	□	□	□	□
Small group conversation	□	□	□	□
Meetings (E.g., Committees, Church)	□	□	□	□
Social activities (E.g., Shopping, Bowls)	□	□	□	□
Television and/or Radio	□	□	□	□
Telephone	□	□	□	□

Q46 Current difficulties with the hearing aid(s)...

	Yes	**No**
a) Do you have difficulty positioning the hearing aid(s) or removing it?	□	□
b) Do you have any difficulty adjusting the controls of the hearing aid(s)?	□	□
c) Does the aid(s) whistle when it is in your ear and set at a comfortable listening level?	□	□
d) Does the fit of the hearing aid or earmould in your ear(s) cause you any discomfort?	□	□
e) Does the hearing aid(s) make any sudden loud noises unbearably loud (not just annoying)?	□	□
f) Does the sound of your own voice sound hollow or like it is echoing?	□	□
g) Do other people help you adjust your hearing aid(s)?	□	□

Q47 Think about the situation where you most wanted to hear better, before you got your present hearing aid(s). Over the past two weeks, how much has the hearing aid helped in that situation?

Helped Not at All	Helped Slightly	Helped Moderately	Helped Quite a Lot	Helped Very Much

Q48 Think again about the situation where you most wanted to hear better. When you use your present hearing aid(s), how much difficulty do you STILL have in that situation?

Very much Difficulty	Quite a Lot of Difficulty	Moderate Difficulty	Slight Difficulty	No Difficulty

Q49 Considering everything, do you think your present hearing aid(s) is worth the trouble?

Not at All Worth it	Slightly Worth it	Moderately Worth It	Quite a Lot Worth It	Very Much Worth It

Q50 Over the past two weeks, with your present hearing aid(s), how much have your hearing difficulties affected the things you can do?

Affected Very Much	Affected Quite a Lot	Affected Moderately	Affected Slightly	Affected Not at All

Q51 Over the past two weeks, with your present hearing aid(s), how much do you think other people were bothered by your hearing difficulties?

Bothered Very Much	Bothered Quite a Lot	Bothered Moderately	Bothered Slightly	Bothered Not at All

Q52 Considering everything, how much has your present hearing aid(s) changed your enjoyment of life?

Worse	No Change	Slightly Better	Quite a Lot Better	Very Much Better