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Investigating the relationship between hearing loss and mental wellbeing: A grounded theory study

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DEDICATION

I would like to dedicate this thesis to my family and friends, both in England and Egypt. Without their support, encouragement, direction, wisdom, and understanding, I would not be where I am now, or even having the privilege of writing this thesis. I would not be where I am today, nor have had the privilege of completing this thesis, without the unwavering love, support, and belief of my husband, Ahmed, who continuously encouraged me even during the moments I struggled to believe in myself, and who always found ways to bring lightness, even through something as simple as a dance in the kitchen. To my grandparents who used to wake up at dawn every morning and have a cup of hot tea and delicious Halawa sandwich ready, “to give me enough energy for my school day ahead”. You’ve both been my inspiration since childhood. To my father who taught me to always aspire for excellence, and to my mother who’s showed me that that is only possible through kindness. To my twin brother, my source of reassurance and calmness in life, ever since we were in diapers. To my father, thank you for your constant support and sacrifices throughout my education, and for always reminding me of the importance of perseverance and hard work. To my friends in ‘the gym’ who have made the experience of undertaking my PhD an absolute pleasure, both in the office and even after working from home due to Covid-19. My friends have filled the past four years with joy, happiness, inspiration, and memories I will cherish forever. Last but not least, I greatly thank my incredible supervision team for their endless guidance, patience, support, encouragement, and their constant belief in me and this project. This thesis would not have been possible without each of you. I sincerely thank you all forever.

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DECLARATION

I certify that this is my own work, except were indicated by referencing. No part of this thesis has been submitted elsewhere for any other degree or qualification.

I declare that generative artificial intelligence (AI) tools were used only as supportive tools during the preparation of this thesis, including for language refinement, proofreading, and structural checking. Generative AI was not used to generate or replace the intellectual content of the thesis, conduct the research, analyse the data, construct the grounded theory model, interpret findings, or determine the conclusions. All research design decisions, analysis, interpretation, theoretical development, critical judgement, and final written content remain my own responsibility.

Signed: Yasmin Ali Date: 14/05/2026

ABSTRACT

Hearing loss is a sensory impairment that not only affects an individual's ability to hear, but also their social, emotional, and psychological states. People with hearing loss (PHL) experience difficulties in communication, incomplete conversations, and diminished interactions. They are therefore more likely to withdraw from social situations and experience social isolation. Most research in the field thus far has explored the daily restrictions PHL experience due to their hearing loss, rather than the impacts the condition can have on their mental wellbeing. A clear understanding of how hearing loss can impact mental wellbeing is yet to be developed. The primary aim of this PhD was to explore how people with hearing loss experience their mental wellbeing, and to identify what factors influence their perceptions of it.

To achieve this aim, two studies were conducted. The first study was a systematic review to inform methodological rigour in the grounded theory methodology applied throughout the current project. Thus, the systematic review investigated how hearing loss studies have applied grounded theory, and established guidelines for future high-quality applications of the methodology. The second study was an empirical grounded theory study that aimed to identify factors that influenced the relationship between hearing loss and mental wellbeing and construct a theoretical model to account for this relationship. Semi-structured interviews were conducted with 33 individuals with a hearing loss. This research established the first theory-guided model, coined the CHAI model, that explains the relationship between hearing loss and mental wellbeing, identifying five main factors that influences this relationship:

characteristics of hearing loss, identity shift, coping threshold, coping styles, and autonomy. Two focus groups (one with PHL and one with audiologists) were conducted to evaluate the theory's relevance and applicability, whilst exploring the possible applications for the model in practice.

Overall, the mental wellbeing of PHL is impacted by a variety of hearing-specific factors and ongoing life circumstances. Hearing loss can increase feelings of low mental wellbeing if the individual's coping threshold has already been exhausted. Future research should further assess the effectiveness of the developed explanatory model in identifying PHL in possible need of psychosocial health support with audiological settings.

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1. CHAPTER 1: INTRODUCTION TO THESIS: UNRAVELLING THE SILENCE OF HEARING LOSS

Hearing loss is often perceived primarily as a sensory impairment, yet its impact extends far beyond the ability to hear. It influences an individual's social interactions, emotional state, and overall mental wellbeing. People with hearing loss (PHL) frequently experience communication difficulties, incomplete conversations, and diminished engagement in social interactions, often leading to social withdrawal and isolation. Despite this, much of the existing research has focused on the physical and communicative challenges associated with hearing loss, rather than its broader psychological and emotional ramifications. This thesis aimed to bridge that gap by exploring the intricate relationship between hearing loss and mental wellbeing, developing a theoretical framework that identifies the key factors influencing this relationship.

1.1. Personal Motivations Behind This Research

While the topic of this PhD project was predefined before I was selected as its researcher, I felt an immediate connection to it upon discovery. My deep-rooted interest in understanding the interplay between hearing loss and mental wellbeing stems from a very personal place that started five years before embarking on this research. My twin brother, Islam, developed a severe hearing loss when we were 18 years old. Witnessing his journey firsthand allowed me to appreciate not just the physiological impact of hearing loss, but also the profound psychological changes it can bring about.

Islam was always the outgoing, playful twin, balancing my more responsible demeanour. However, after he developed hearing loss his vibrant personality began to significantly change. He became quieter, more withdrawn, and less inclined to participate in social and family gatherings. It was only after I

embarked on this PhD journey that I truly understood the depth of his struggles. Through this research, I was able to engage in open conversations with him, learning more about the daily challenges he faced, including difficulties in academic settings, diminished confidence in social interactions, and the reluctance to use hearing aids due to self-consciousness.

This research has not only contributed to the academic field but has had a tangible impact on my brother's life. My findings helped encourage Islam to start using hearing aids, a step he had resisted for years. Without my exposure to audiological research, this shift may have been significantly delayed. This personal connection has fuelled my passion and dedication to this project, reinforcing my desire to contribute meaningfully to the lives of those living with hearing loss.

1.2. Influences and Inspirations

Beyond my personal experiences, other influences shaped the direction of my research. I discovered Beethoven's Heiligenstadt Testament (Beethoven, 1802), a letter in which the composer detailed to his brother the immense psychological distress caused by his hearing loss, which made him unable to enjoy life, unable to compose his music, and was leading him to have profound suicidal thoughts. Reading his words, written over two centuries ago, revealed the timeless and deeply personal struggle faced by many PHL. His reflections resonated profoundly with me, regarding what I know of how the condition impacted my own brother, yet somehow this account was two hundred years old. Beethoven's Heiligenstadt Testament also reinforced my conviction that a thorough outline of the psychological effects of hearing loss is much needed today, to outline and explain its everyday impact on psychological wellbeing,

which would allow for the phenomenon to be better understood and systematically accommodated for in PHL's rehabilitative journey.

This motivation additionally led me to participate in and win an essay competition that was published in Nature, titled Beethoven's Dream (Ali, 2019). The essay explored the link between hearing loss and mental health, drawing parallels between Beethoven's experiences and my brother's journey. I also discussed emerging scientific advancements, such as the REGAIN clinical trial, which explores potential treatments for hearing loss. Through this essay, I aimed to highlight the often-overlooked psychological struggles associated with hearing loss, bringing awareness to a broader audience in contemporary society.

1.3. The Growing Need for Deeper Understanding

As my PhD journey progressed, my motivation for this research only grew stronger. The more people with hearing loss I met, the more evident it became that there was a critical need to showcase and understand the full impact of hearing loss on wellbeing. Each interaction provided new insights into the daily struggles, resilience, and coping mechanisms of individuals navigating life with hearing loss. These experiences reinforced the necessity of an ongoing conversation about how hearing loss affects mental health, social identity, and quality of life.

Through my research, I realised that hearing loss is not merely a medical condition but a multifaceted experience that requires a holistic approach. Many individuals with hearing loss lack access to adequate psychosocial support, and their struggles often go unnoticed, even by close family and friends. This realisation further solidified my commitment to building a framework that can be

utilised in both academic and clinical settings to foster a deeper understanding of the holistic ways in which hearing loss can influence individuals.

Looking ahead, this research provides a foundation upon which future studies can build. By deepening our understanding of the intersection between hearing loss and mental wellbeing, we can work toward developing better interventions, support networks, and awareness initiatives. The grounded theory developed in this project that explains the relationship between hearing loss and mental wellbeing (CHAI model), offers a starting point for this exploration, but its true value lies in how it can be expanded and adapted to create meaningful change for PHL.

1.4. The Importance of This Research

This PhD project is not simply academic endeavour; it is a step toward understanding the silent struggles of those with hearing loss and advocating for better support systems. By developing the CHAI model, this research provides a structured way to comprehend how hearing loss impacts mental wellbeing, helping audiologists and healthcare professionals identify individuals who may require psychosocial support.

Furthermore, this study highlights the importance of interdisciplinary approaches to hearing loss—integrating audiology with mental health services to provide more holistic care. The findings also emphasise the role of personal and societal attitudes in shaping the experiences of PHL, stressing the need for greater awareness and empathy.

In sum, this research is deeply personal yet universally relevant. It is driven by a desire to understand and improve the lives of PHL, informed by both academic inquiry and lived experience. As this thesis unfolds, it will delve deeper into the

methodologies, findings, and implications of this research, ultimately contributing to a more nuanced understanding of the relationship between hearing loss and mental wellbeing.

1.5. Aim and Objectives of the Thesis

The overall aim of this PhD thesis was to investigate how and why hearing loss can impact an individual's state of mental wellbeing. While existing literature has extensively explored the audiological and communicative consequences of hearing loss, there remains limited understanding of how hearing loss influences mental wellbeing as a broader psychosocial construct. Much of the existing research has focused on diagnosable mental health conditions, such as depression and anxiety, rather than exploring how people with hearing loss experience, interpret, maintain, and negotiate their mental wellbeing in everyday life. This thesis therefore sought to address this gap through a grounded theoretical exploration of the lived experiences of people with hearing loss.

To achieve this aim, the thesis consisted of two interconnected studies. First, a systematic review was conducted to investigate how grounded theory methodology has been applied within hearing loss research and to identify methodological strengths, limitations, and recommendations for future high-quality grounded theory studies. Second, an empirical grounded theory study explored how people with hearing loss define and experience mental wellbeing, leading to the development of the CHAI grounded theory model explaining the relationship between hearing loss and mental wellbeing. Focus groups involving both people with hearing loss and audiologists were subsequently conducted to

evaluate the developed theory's credibility, resonance, usefulness, and applicability within practice.

The objectives of this thesis were:

1. To critically explore existing literature relating to hearing loss, mental wellbeing, psychosocial functioning, and mental health.
2. To systematically review the application of grounded theory methodology within hearing loss research and identify methodological recommendations for future grounded theory studies.
3. To explore how people with hearing loss define and experience mental wellbeing in their everyday lives.
4. To identify the emotional, social, cognitive, behavioural, and interpersonal factors influencing the relationship between hearing loss and mental wellbeing.
5. To construct a grounded theoretical framework explaining the relationship between hearing loss and mental wellbeing.
6. To evaluate the credibility, originality, resonance, and usefulness of the developed grounded theory model through focus group discussions with people with hearing loss and audiology clinicians.
7. A more detailed breakdown of the aims, objectives, methods, and individual studies included within this thesis is provided later in Chapter two.

1.5.1. Clarification of Terminology

Throughout this thesis, distinctions are made between the concepts of mental wellbeing, mental health, mental health difficulties, mental health disorders, and mental illness, as these terms are often used interchangeably within existing literature despite referring to different constructs. Within the present study,

mental wellbeing is conceptualised as a broader subjective and psychosocial state relating to emotional, psychological, and social functioning, including experiences such as coping, resilience, social connectedness, fulfilment, and quality of life. In contrast, mental health disorders or mental illness refer to clinically diagnosable psychological conditions, such as depression or anxiety disorders.

While previous hearing loss literature has frequently focused on associations between hearing loss and mental health conditions, the current thesis primarily explores mental wellbeing as a broader lived and experiential construct. Nevertheless, the thesis acknowledges that experiences of mental wellbeing and mental health can overlap and influence one another within everyday life. These distinctions are maintained throughout the thesis to improve conceptual clarity and consistency.

1.6. Philosophical Approach

This thesis adopts a constructivist grounded theory approach, primarily informed by Charmaz's constructivist school of grounded theory. This philosophical position recognises that knowledge is not objectively discovered as a fixed reality, but is constructed through interactions between participants, researcher, context, interpretation, and experience. This approach was considered particularly appropriate for the present study, as the relationship between hearing loss and mental wellbeing is deeply subjective, socially situated, and shaped by personal meaning.

The constructivist position taken throughout this thesis assumes that individuals interpret and make sense of their experiences through their relationships,

identities, social interactions, communication experiences, and broader life circumstances. Consequently, understanding mental wellbeing in relation to hearing loss required close attention to how participants themselves described, interpreted, and conceptualised their experiences. This was central to the decision not to impose a rigid predefined definition of mental wellbeing at the outset of the empirical study. Instead, the study sought to explore how mental wellbeing was understood and experienced by people with hearing loss themselves.

This philosophical approach was also influenced by symbolic interactionism, which emphasises the importance of meaning-making through social interaction. Hearing loss can alter how individuals communicate with others, perceive themselves, navigate social environments, and experience inclusion or exclusion within everyday life. A constructivist grounded theory approach therefore enabled the exploration not only of what participants experienced, but also how they interpreted, negotiated, and incorporated these experiences into their sense of self and wellbeing.

Within this approach, the researcher is not viewed as detached from the research process. Rather, the researcher is recognised as actively involved in the co-construction of meaning throughout data collection, coding, analysis, memo writing, theoretical sampling, and theory development. This was especially relevant within the present study given my personal connection to hearing loss through my twin brother’s experiences. Rather than attempting to remove this influence entirely, reflexivity was applied throughout the research process to critically consider how my experiences, assumptions, emotional

responses, and developing audiological understanding may have shaped the interpretation of data and the development of the grounded theory.

The CHAI grounded theory model developed within this thesis should therefore be understood as an interpretive and theoretically constructed account of the relationship between hearing loss and mental wellbeing. While grounded in the experiences and perspectives of participants, it is not presented as a final or universal explanation of all experiences of hearing loss, but rather as a contextual and evolving framework that can continue to be refined through future research and clinical application. A fuller discussion of the philosophical underpinnings of this thesis is provided in Chapter 3.

1.6.1. Patient and Public Involvement and Engagement (PPIE)

Patient and Public Involvement and Engagement (PPIE) formed an important component of this research process. In line with contemporary qualitative and health research principles, the perspectives of people with lived experience of hearing loss were incorporated throughout multiple stages of the study to improve relevance, sensitivity, clarity, and applicability of the research. PPIE contributors provided feedback on aspects of the study design, participant-facing materials, interview topic guides, and the broader relevance of the research aims. Their perspectives also informed reflections regarding the practical applicability and resonance of the developed grounded theory model.

Integrating PPIE within the research process supported the study's broader constructivist approach by recognising the value of lived experience perspectives in shaping understanding of hearing loss and mental wellbeing. Rather than positioning participants solely as subjects of research, the study

aimed to incorporate experiential insight to strengthen the relevance and grounding of the research process and its outputs. Further detail regarding the role of PPIE across different stages of the study is provided within later methodological chapters.

1.7. Structure of the Thesis

This thesis is organised into eight chapters. *Chapter 1: Introduction to Thesis: Unravelling the Silence of Hearing Loss* introduces the research topic and outlines the personal and academic motivations underpinning the study. The chapter also presents the aims and objectives of the thesis, philosophical positioning, and overall thesis structure.

Chapter 2: Background and Literature Review: Exploring the Physical, Emotional & Psychosocial Impacts of Hearing Loss provides the theoretical and contextual foundations of the thesis. The chapter first explores broader background literature relating to hearing loss, participation restrictions, relationships, stigma, and psychosocial functioning before presenting a focused literature review examining how mental wellbeing has been conceptualised and investigated in relation to hearing loss.

Chapter 3: An Introduction to Grounded Theory Methodology and a Systematic Review of Its' Application Within Hearing Loss Research introduces grounded theory methodology, its philosophical underpinnings, and its application within hearing loss research. The chapter also presents a systematic review evaluating how grounded theory has previously been applied within hearing loss studies and develops recommendations for future methodological rigour.

Chapter 4: CHAI Grounded Theory Model: Disentangling the Relationship Between Hearing Loss and Mental Wellbeing presents the primary empirical grounded theory study. The chapter outlines participant recruitment, data collection procedures, analysis processes, and the development of the CHAI grounded theory model explaining the relationship between hearing loss and mental wellbeing.

Chapter 5: Theory Evaluation evaluates the developed CHAI grounded theory model through focus group discussions involving both people with hearing loss and audiologists. The chapter assesses the credibility, originality, resonance, and usefulness of the developed theory and explores its potential relevance within clinical practice.

Chapter 6: Discussion of the CHAI Grounded Theory discusses the findings of the developed grounded theory in relation to existing literature, theoretical perspectives, and implications for future research and audiological practice. Particular attention is given to the thesis's contribution to understanding mental wellbeing in people with hearing loss.

Chapter 7: Reflexivity: Reflecting on My Influence on This Grounded Theory Study provides a reflexive account of the researcher's role throughout the study, including personal motivations, positionality, methodological development, and the influence of reflexivity on data interpretation and theory construction.

Finally, *Chapter 8: Appendices & References* contains the thesis references, supplementary materials, methodological appendices, supporting

documentation, and additional resources relevant to the studies conducted within this thesis.

2. CHAPTER 2: BACKGROUND AND LITERATURE REVIEW: EXPLORING THE PHYSICAL, EMOTIONAL & PSYCHOSOCIAL IMPACTS OF HEARING LOSS

2.1. Introduction to Chapter

This chapter provides the theoretical, conceptual, and contextual foundations underpinning the current thesis. While hearing loss is commonly understood as a sensory impairment affecting an individual's ability to hear, its impacts often extend far beyond auditory functioning alone. Hearing loss can influence communication, relationships, social participation, identity, emotional experiences, and overall psychological wellbeing. Despite this, much of the existing literature has historically focused on the physiological and communicative consequences of hearing loss, with comparatively less attention given to how hearing loss influences an individual's broader state of mental wellbeing.

The chapter is divided into two main sections. The first section provides background and contextual understanding regarding hearing loss, including definitions of hearing loss and deafness, participation restrictions, communication difficulties, stigma, relationships, and psychosocial functioning. This section establishes the broader lived experiences associated with hearing loss and outlines how the condition can affect multiple areas of everyday life. The second section presents a focused literature review specifically exploring how mental wellbeing has been conceptualised and investigated in relation to hearing loss. Existing literature relating to emotional wellbeing, mental health,

coping, social functioning, and psychological experiences is critically explored to identify key gaps within current understanding. Particular attention is given to the limited research directly investigating mental wellbeing as a distinct construct within hearing loss research. The chapter concludes by outlining the aims and objectives of the thesis, which were developed in response to the identified gaps within the literature.

PART ONE: BACKGROUND AND SCENE SETTING

2.2. Hearing, Hearing loss, & Deafness

Hearing is the central sensory process responsible for perceiving sounds. This auditory sense has been significant for human survival across millenniums by aiding civilisations to detect and escape from danger (Peck 1994). The sense of hearing was also central to the formation of linguistic bonds, and vocabularies through which individuals could communicate within tribes, improving their communication, understanding, leading to improved protection against collective threats (Peck, 1994). Today, the auditory system maintains these functions amongst others, whilst aiding individuals to perform necessary everyday interactions.

The human ear is sensitive to a range of sound frequencies and can hear in the normal range of between 20 Hz and 20,000 Hz (Hertz) (Haile et al., 2021). Hearing loss occurs when the ability to perceive sound frequencies in the normal hearing range becomes impaired worldwide (Haile et al., 2021). Verbal communication acts as a tool through which shared understandings, meanings, and relationships, are developed and social connectedness is established and maintained (Frith & Frith, 2007; Helliwell, Aknin, Shiplett, Huang, & Wang,

2017). Losing the ability to engage in verbal communications and subsequent social interactions can thus hold damaging consequences for individuals, as their primary tool for addressing life and relationships can become impaired (Gao, Hu, & Yao, 2020). The resultant feelings of isolation and decreased ability to engage in everyday life, could understandably cause damaging effects on an individual's sense of wellbeing (Cherko, Hickson, & Bhutta, 2016; Helliwell et al., 2017).

Globally, hearing loss is the third most common long-term condition affecting the population after lower back pain and migraines (Bernell & Howard, 2016; Haile et al., 2021; Scinicariello, Carroll, Eichwald, Decker, & Breysse, 2019; Vos et al., 2016; World Health Organization, 2005). Additionally, it is currently the most common sensory condition worldwide (Haile et al., 2021). The prevalence rates for hearing loss are increasing globally, with an estimated 1.57 billion people experiencing the condition in 2019 (Haile et al., 2021). This is expected to rise to 2.45 billion by 2050 (Haile et al., 2021). In the UK, 12 million people are estimated to have an ongoing hearing loss (WHO, 2020; Action on Hearing Loss, 2018). The annual cost of unaddressed hearing loss in the UK is £30 billion, and globally $750 billion (WHO, 2020). Interestingly, the majority of these costs are due to social and psychological impacts of hearing loss, rather than ENT or audiology treatment (WHO, 2017). Overall, hearing loss is one of the most prevalent, costly, and challenging sensory disorders requiring intervention (WHO, 2018; Orji et al., 2020).

There are three main types of hearing loss; conductive hearing loss, sensorineural hearing loss, and mixed hearing loss (conductive *and* sensorineural) (Alshuaib, Al-Kandari, & Hasan, 2015; Katz, Medwetsky, Burkard, & Hood, 2009). Conductive hearing loss occurs when there is an issue

in an individual's sound pathway. In this type of hearing loss, sound energy in the outer or middle ear is prevented from passing into the inner ear (Katz et al., 2009). Preventers of sound travel include earwax, objects in the ear, cysts, and perforated eardrums. These causes are usually medically treated, and levels of hearing can be restored (Hallberg & Carlsson, 1991; Katz et al., 2009). In comparison, sensorineural hearing loss involves damage to the inner ear, which is the central system for sound detection (Timmer, Hickson, & Launer, 2015). This damage is usually a long-term condition requiring ongoing management (Katz et al., 2009).

Categories of hearing loss are usually based on hearing thresholds that reflect the level of sound below which a person is unable to hear or detect (Goman & Lin, 2016; Wayne & Johnsrude, 2015). These thresholds are measured through a test called pure-tone audiometry; pure-tones are administered to each ear of an individual; to determine the lowest sound level they can detect for each puretone frequency. This calculation produces an average of thresholds across key octave frequencies, which can then be used to categorise and define the hearing loss (Wayne & Johnsrude, 2015).

Clark (1981) categorised hearing loss as either mild, moderate, severe, or profound. The British Society for Audiology (2011; 2016) state that the threshold for each category is as follows:

- mild hearing loss (21- 40 dB),
- moderate hearing loss (41-70dB),
- severe hearing loss (71- 95dB), and
- profound hearing loss (95+dB).

Whilst these are the thresholds currently used in the UK by audiologists to determine the level of hearing ability in patients, and further categorise the

degree of hearing loss, it should be noted that there is a lack of universal consensus on these categories (Timmer et al., 2015). The World Health Organization's criteria for hearing loss should act as a global set of definitions of hearing loss. This includes: No impairment (25 dB or better); Slight impairment (26-40 dB); Moderate impairment (41-60 dB); Severe impairment (61-80 dB); and a Profound impairment including deafness (81 dB or greater) (Asghari et al., 2017). Despite this, some differences can be found between the official classifications across countries. For example, the threshold in the United States is: mild (25 dB- 40dB), moderate (41dB - 60dB), Severe (60 dB- 80 dB), and profound (80+dB) (Goman & Lin, 2016). This outlines the difficulty of establishing a standardised definition of hearing loss thresholds worldwide and conveys that audiological practices may differ from one country to another.

2.2.1. Deaf, deaf, or Person with hearing loss

The labels of Deaf, deaf, and person with hearing loss (PHL) are often used interchangeably to describe individuals with a hearing loss (Kemmery & Compton, 2014). This is a common mistake as strong differentiations between being Deaf and having a hearing loss have been identified within the literature, and are often outlined by the individuals with hearing loss themselves (Cue, Pudans-Smith, Wolsey, Wright, & Clark, 2019; Pudans-Smith, Cue, Wolsey, & Clark, 2019). Deaf spelled with a capital D is the accepted term within Deaf Communities to describe individuals with profound levels of hearing loss, or whom have almost/ completely lost their hearing (Skelton & Valentine, 2003). Individuals that identify as Deaf are likely born with their deafness or acquire it early in childhood, and usually learn and rely on sign language as their main form of communication (Chapman & Dammeyer, 2016). Experiencing hearing

loss at such an early age, can aid in integrating the impairment as part of the person's existing identity. The Deaf community consists of individuals with similar experiences and modes of communication, and individuals can become active members themselves through feeling a profound sense of belonging (Cue et al., 2019; Kemmery & Compton, 2014).

A PHL, or a deaf individual with a lower-case d, on the other hand is the label used by individuals in the Deaf community to refer to individuals with mild, moderate, or severe hearing loss (Fileccia, 2011; Pudans-Smith et al., 2019). A PHL often acquires hearing loss later in life and has had some lived experience of normal hearing. People with hearing loss are therefore less likely to identify as being Deaf, or learn sign language, as they often focus on improving their communication tactics by relying on their residual level of hearing, and use hearing devices such as hearing aids or cochlear implants (Cue et al., 2019). Evidently, the Deaf population could have a different journey with their deafness, and may relate a contrasting view of their deafness, as being integral to their identity, and not a loss at all (Chapman & Dammeyer, 2016). This thesis focuses on the experiences of people who identify as having a hearing loss but would not consider themselves to be Deaf. Chapman and Dammeyer (2016) argue that "person/people with a hearing loss" is preferable to "deaf" as it is potentially less stigmatising. As a term it recognises that having a hearing loss is only one aspect of a persons' identity.

2.2.2. Hearing Devices

Some PHL adopt the use of hearing devices such as hearing aids or cochlear implants, during their rehabilitation journey, which can convert sounds to electrical stimuli, and subsequently improve the ability to hear sounds

(Boothroyd, 2007; Ferguson et al., 2017; Ferguson, Woolley, & Munro, 2016). Positive long-term benefits of using hearing aids have been associated with improved physical and emotional states (Ferguson et al., 2016), and improved overall quality of life in PHL (Chisolm et al., 2007). Despite this, it is estimated by hearing aid manufacturers that only 10% of the population who might benefit from hearing aids actually adopt them, and this statistic drops to 3% in lower income countries (WHO, 2004; 2018).

After PHL begin to realise a decline in their hearing, it takes an average of 8.9 years for them to seek clinical support or audiological services (Simpson, Matthews, Cassarly, & Dubno, 2019), and tackle their hearing loss in its late stages (McCormack & Fortnum, 2013). This is significant as hearing loss usually worsens without intervention. While hearing aids do not cure hearing loss, they can help manage its impact by improving sound perception and communication, thereby mitigating some of the associated challenges. Hearing aids have been associated with improved mood and quality of life (Williams, Guthrie, Davidson, Fisher, & Griffith, 2020), and has also been associated with slowing the progression of hearing loss (Ferguson et al., 2017; McCormack & Fortnum, 2013).

To estimate the global burden of hearing loss, Orji and colleagues (2020) used the Global Burden Disease (GBD) enterprise, which is used across 204 countries to predict the level of burden of 369 health conditions. Globally, 401.4 million individuals were identified as having a hearing loss and categorised as being ‘in need’ of hearing aids (Orji et al., 2020). Only 17% of this population were found to have adopted a hearing aid, whilst 83% did not use any assistive device (Orji et al., 2020). Overall, they estimated that if every PHL in the considered population would have adopted a hearing aid, the burden level

would be reduced by almost 60% (Orji et al., 2020). This is problematic because as populations continue to age, it's estimated that the number of PHL will also increase, further increasing the level of global burden (Haile et al., 2021). Therefore, despite the availability of hearing devices, their uptake levels are significantly low which contributes to the continued experienced difficulties and decreased quality of life.

2.3. Living with Hearing loss

A patient's own self-report of the hearing difficulties they face can provide a more comprehensive and nuanced understanding of their lived experience. (Heinrich, Henshaw, & Ferguson, 2015). While audiometric assessments measure the physiological aspects of hearing loss, self-reports capture the everyday challenges, emotional impact, and social consequences that may not be fully reflected in clinical tests. Therefore, self-reports are essential in understanding the broader impact of hearing loss beyond just its clinical presentation. Reported hearing difficulties were also found to be a better predictor for hearing loss related outcomes such as level of fatigue, cognitive function and vigour, which were unrelated to the degree of hearing loss measured (Hornsby & Kipp, 2016). Thus, the extent to which hearing loss impacts an individual's life can surpass the readings of audiometric data. Helen Keller, a prominent American author and academic who was both deaf and blind, stated during an interview that "Blindness cuts you off from things; deafness cuts you off from people." (Keller, 1905; Keller, 2001; Samuels, 2013). The social impacts of hearing loss are well-documented in the research literature, highlighting how communication difficulties, social withdrawal, and stigma can significantly affect an individual's psychosocial well-being (Bennett

et al., 2020). However, while many studies acknowledge these challenges, there is a need for a more nuanced understanding of how social factors interact with other dimensions of mental wellbeing. For instance, some research suggests that the impact of hearing loss on social connections may vary depending on factors such as personality traits, coping strategies, and access to support systems (Heffernan et al., 2016; Mick et al., 2014). Additionally, while hearing loss can contribute to loneliness and isolation, some individuals actively develop compensatory strategies or strengthen non-verbal communication skills to maintain their social relationships (Vas et al., 2017). Therefore, a more critical perspective is needed to move beyond a deficit-based understanding and explore the diverse ways in which people with hearing loss navigate their social environments and maintain their psychosocial wellbeing (Bennett et al., 2020).

As it is not a visible disability, the extent to which hearing loss can negatively impact an individual's relationships, engagement, and interactions, is vastly underestimated (S. M. Cohen, Labadie, & Haynes, 2005; Weinstein & Ventry, 1982; Weinstein & Ventry, 1983). In the following sections I will detail the ways in which hearing loss can impact an individuals' social and personal life, emotions, and ability to engage in life activities. This review is particularly relevant to understanding wellbeing, as these factors are integral to an individual's overall mental and emotional health. By examining existing research on these aspects, this section will highlight the broader implications of hearing loss beyond auditory function, reinforcing the need for a holistic approach to addressing its impact. I will also address the limited life and work opportunities, experiences of stigma and discrimination many PHL face, and ultimately shed a light on how hearing loss has been associated with

diagnoseable decreased mental health conditions, and decreased feelings of mental wellbeing in everyday life.

2.3.1. Participation Restrictions

The International Classification of Functioning, Disability and Health Framework (ICF) (World Health Organization, 2001) created by the World Health Organization (WHO) describes the impact of contextual, personal, and environmental factors on a person living with a disability, through addressing concerns that can arise due to the long-term impacts of the disability, which in this case would be hearing loss (Timmer et al., 2015; Vargus-Adams & Majnemer, 2014). It specifically emphasises the restrictions an impairment can produce on an individual's ability to function in their daily lives, and the decreased participation in activities (participation restriction) this can lead to (Vargus-Adams & Majnemer, 2014; World Health Organization, 2001). Individuals with hearing loss can face difficulty engaging in everyday life activities, such as having conversations in crowded environments including restaurants or busy streets. Listening in quiet environments may also be impacted, e.g., when watching television or listening to music alone (Hallberg, Lillemor, Carlsson & Timmer, 1991; Timmer et al., 2015).

A study by Granberg and colleagues qualitatively explored the applicability of the ICF for adults with hearing loss. The ICF was found to be an appropriate and representative tool in explaining experiences of functioning and disability relating to hearing loss, with 143 ICF categories regarding aspects relating to hearing loss covered during analysis. However, the behaviour of others interacting with the PHL was one factor not covered by the ICF, despite the crucial role that significant others and relationships play in shaping an

individual's well-being. Social support, communication dynamics, and the attitudes of family members, friends, and colleagues can either enhance or hinder the well-being of individuals with hearing loss. Positive social interactions can foster emotional resilience, inclusion, and a sense of belonging, while negative interactions, such as impatience or lack of understanding, can contribute to isolation, frustration, and diminished mental well-being. Therefore, considering the social environment and relational factors is essential for a more comprehensive understanding of how hearing loss impacts well-being beyond individual functional limitations. Negative emotions related to their hearing functions was also commonly outlined by participants. Overall, the ICF was concluded as being an appropriate and representative tool for assessing the functioning of PHL, but can continue to be expanded to reflect the impact of the behaviour of others on PHL (Granberg et al., 2014). Thus, the ICF enables the identification of possible negative consequences that accompany living with an impairment and how it can reduce an individual’s ability to function in their daily life.

2.3.2. Life Chances with Hearing loss

Life chances can be defined as the level of opportunity an individual has to progress and achieve their goals in life. Research suggests that PHL can experience limitations in their career options and opportunities (Shaw, Tetlaff, Jennings, & Southall, 2013; World Health Organization, 2017). PHL can experience prejudice during the applications process for jobs, and if successful, within the workplace, as their full ability and potential can be questioned (Shaw et al., 2013). Despite governmental measures taken to require the fair treatment of individuals with hearing loss, and accommodations for PHL in some work

places such as telephones for the hearing impaired, experiences of prejudice, social exclusion and unequal opportunities continue to be reported within the contemporary literature (Bam & Ronnie, 2020; Southall, Jennings, & Gagné, 2011). These individual mistreatments also translate into global costs. The World Health Organization report that the lack of employment, premature retirement, and socially restricted occupational potential PHL face in society due to prejudice, result in the annual cost of $1.5 billion (WHO, 2017). In the UK it is estimated that the comprehensive cost of hearing loss and deafness is over £30 billion annually (Archbold, Lamb, O'Neill, & Atkins, 2018).

Hearing loss can also present significant physical and safety concerns, which impacts overall well-being and life expectancy. The reduced ability to detect critical environmental sounds, such as fire alarms or oncoming traffic, increases the risk of accidents and injuries, compromising an individual's safety and independence (Arlinger, 2003; Mohr et al., 2000). Beyond immediate safety risks, hearing loss has been linked to long-term physical health implications, including a shorter life expectancy compared to the general population (Tareque, Chan, Saito, Ma, & Malhotra, 2019). Research suggests that individuals with hearing loss may spend more years with limited physical functioning, making everyday tasks increasingly difficult and potentially contributing to a decline in overall health and mobility (Tareque et al., 2019; Vercammen et al., 2020). Given these risks, early audiological intervention is essential, as it may help mitigate some of these negative effects, improve safety, and support long-term physical and cognitive well-being.

2.3.3. Communication & Relationships

As hearing loss leads to impaired speech recognition and poor localisation of sound in PHL (Dobie, Van Hemel, & Council, 2004), many spoken utterances can be missed in a conversation, leading to an incomplete reception of the speech signal, and incomplete social interactions. An online survey in the United States, which included 395 adults aged 18+ with a hearing loss, reported that 88% of respondents said they regularly missed words in conversations, whilst 67% of participants reported there is little to no comprehension (Connolly, 2016). This decreased speech comprehension can lead to diminished quality of interactions between people with hearing loss and their communication partners in everyday life.

Research has reported negative consequences of hearing loss on their interpersonal relationships (Heffernan, Coulson, Henshaw, Barry, & Ferguson, 2015; Heffernan, Coulson, Henshaw, Barry, & Ferguson, 2016). Not being able to hear or fully comprehend conversations and engage in mutual conversations limits an individual's ability to partake in collective gatherings and social interactions (Nkyekyer, Meyer, Blamey, Pipingas, & Bhar, 2018; Weinstein, 1982). Poor quality of interactions with others, including friends and family is commonly reported by PHL (Barker, Leighton, & Ferguson, 2017; Mick, Kawachi, & Lin, 2014). Hearing loss can also cause conflict and frustration within romantic relationships (Barker et al., 2017; Hallberg & Barrenas, 1993a).

A prominent literature review was conducted by Hetú and colleagues in 1993, in which they attempted to identify which interactive factors caused the breakdown of intimate relationships, specifically involving a partner with acquired hearing loss. Despite the small number of studies that were found investigating this

subject at the time, four main interactive obstacles were identified, the first being *lack of internal reference* (Hetu, Jones, & Getty, 1993). This process involved the person with hearing loss' overrating the quality of their own hearing, in which they commonly underestimated how severe their hearing loss was. This is explained by PHL lacking an internal reference, preventing them from comparing their listening ability to others, and having become accustomed to their current hearing ability. This underestimation and lack of awareness led PHL's partners to feel frustrated, unheard, and to participate in the second interactive obstacle which is *blame* (Hetu et al., 1993). To inform PHL of their worsening hearing ability, partners can begin to shift blame onto PHL for frequent miscommunications, missing social cues, and being unable to fully engage in social situations (Hetu et al., 1993). The third obstacle, *misunderstandings,* can then begin to occur in the relationships where the mishearing and lack of attention by PHL can be perceived as them being unwilling to communicate or engage with their partner.

Finally, the fourth and most powerful obstacle is *Stigma*. Stigma is defined as a state that is viewed as abnormal, and can lead to negative perceptions within society (Goffman & Carpenter, 1963). Being seen as different by others can lead to a person becoming devalued, unaccepted, ridiculed, and/or marginalised (Goffman & Carpenter, 1963). Negative labels associated with hearing loss continue to exist within society, leading to PHL experiencing stigma because of misconceptions regarding their disability. Forms of stigma associated with hearing loss include PHL being viewed as unfriendly, incompetent, unintelligent, elderly, or cognitively slow (Wallhagen, 2010). The stigma experienced by others can be in the form of behaviours, verbal exchange, or body language, which leads PHL to feel belittled because of their

abilities or image (Goffman & Carpenter, 1963). The negative emotional effects can become worse if the perpetrator is a friend, family member or partner of the PHL, which can regularly occur (Hetu, 1993; Wallhagen, 2010). Importantly, PHL can also engage in the process of self-stigma, in which they themselves withhold the negative connotations regarding hearing loss, and do not want to be associated with this hearing loss label (Lash & Helme, 2020). PHL can subsequently attempt to conceal their hearing loss and experience greater difficulty interacting in everyday life. Others cannot accommodate for their hearing loss, due to a lack of awareness that a decreased ability is present. This can also create a psychological strain on individuals who begin to become anxious at the thought of being 'found out' and labelled as a PHL (Lash & Helme, 2020; Southall et al., 2011). Overall, a PHL can be reinforced with perceptions of being slow, prematurely old, and inadequate in their daily lives, leading to diminished self-esteem, and feelings of powerlessness in their relationship and life in general (Hetu et al., 1993).

Contemporary research continues to assert Hetú' et al. (1993) findings. For example, Barker et al. (2017) concluded that partners with greater understanding and empathy were more likely to engage in aligned coping. This involves harmonious interactions and goals between the person with hearing loss and their partner (Barker et al., 2017). This type of coping was also associated with proactivity in their auditory rehabilitation journey and improved quality of life overall (Barker et al., 2017).

Alternatively, one study has reported positive impacts of hearing loss on the quality of a couples' relationship (Yorgason, Piercy, & Piercy, 2007). Yorgason and colleagues conducted eight semi-structured interviews with older-age

couples, consisting of one CP and one PHL in each. The couples reported finding meaning and acceptance in their relationship, which was facilitated through factors such as resilience, gratitude, and humour (Yorgason et al., 2007). They also identified that some couples became closer after developing improved communication skills, and that this became their greatest relationship strength (Yorgason, Piercy, & Piercy, 2007; 2010).

Despite this, the majority of studies within the field have found predominantly negative influences of hearing loss on couples' relationships, with a greater likelihood that negative feelings develop (Govender, Maistry, Soomar, & Paken, 2014), and poorer social, psychological, and physical wellbeing in partners (Barker et al., 2017; Hallam, Ashton, Sherbourne, & Gailey, 2008; Wallhagen, Strawbridge, Shema, & Kaplan, 2004). Despite some evidence suggesting that for a minority of couples hearing loss can bring partners closer and strengthen relationships (Bodenmann, 2005), a larger consensus in the literature reveals that most relationships are negatively impacted by hearing loss which is more likely (Yorgason et al., 2007; 2010). There is a need however for a more nuanced understanding of the factors that shape these experiences. Many studies highlight how hearing loss can lead to frustration, miscommunication, social withdrawal, and emotional strain between partners (Barker et al., 2017; Yorgason et al., 2007; 2010). However, the evidence supporting the potential for relationship strengthening in some cases raises important questions about resilience, adaptation, and coping strategies that need to be further underexplored as these could be key processes maintaining mental wellbeing during PHL's rehabilitative journey (Scarinci, Worrall & Hickson 2008; 2009).

One key issue is that much of the literature focuses on challenges and burden rather than the mechanisms through which couples successfully navigate hearing loss together (Barker et al., 2017). Research tends to generalise negative experiences without sufficiently considering variations based on relationship dynamics, communication styles, access to support, or pre-existing relationship quality. Additionally, studies often adopt a deficit-based perspective rather than an empowerment-focused approach, overlooking how couples who actively develop new communication strategies or seek support may experience strengthened bonds journey (Yorgason, Piercy, & Piercy, 2007; 2010).

Therefore, while it is clear that hearing loss presents challenges in relationships, a more balanced exploration is needed. Future research should aim to identify protective factors and adaptive strategies that enable couples to maintain or even improve their relationships despite the presence of hearing loss. By shifting towards a more holistic understanding, interventions can be developed to support not just the difficulties but also the potential for resilience and growth in affected relationships.

PART TWO: FOCUSED LITERATURE REVIEW

The preceding sections provided background and contextual understanding regarding hearing loss, participation restrictions, relationships, stigma, and psychosocial functioning. Having established the broader lived impacts of hearing loss, the following section now presents a focused literature review specifically exploring how mental wellbeing has been conceptualised and investigated in relation to hearing loss. Particular attention is given to existing theoretical understandings of mental wellbeing, gaps within contemporary

literature, and the limited research directly investigating mental wellbeing as a distinct construct within hearing loss research.

2.4. Literature Review to Understand if/how Mental Wellbeing has been Investigated in Relation to Hearing loss

The following literature review was conducted in form of necessity to understand the capacity to which mental wellbeing had been researched in relation to hearing loss. This was also needed in order to understand how the current project fit within the contemporary scope of hearing loss research and further identify the gaps in research relating to hearing loss and mental wellbeing.

2.4.1 Identifying Gaps in the Literature

In conducting the focused literature review, I systematically examined existing research relating to understanding the relationship between hearing loss and mental wellbeing. My approach involved identifying key themes, evaluating previous findings, and assessing where further research was needed. Specifically, I asked the following questions whilst conducting the literature review to identify gaps within the literature:

1. What is the definition of mental wellbeing in contemporary Psychology research?

2. How does hearing loss impact an individual's emotional, psychological, and social wellbeing?

3. What coping strategies do people with hearing loss use, and how effective are they in mitigating negative mental health outcomes?

4. To what extent is mental wellbeing addressed within audiology and clinical interventions if at all?

2.4.2 Method

This PhD's literature review was completed in two stages as recommended by the constructivist school of grounded theory. The first stage involved a general search which aided identifying the existing gaps within the literature (Dunne, 2011; McGhee, Marland, & Atkinson, 2007). In this general search I avoided searching for studies that directly investigated the relationship between hearing loss and mental wellbeing. This is in line with constructivist grounded theory principles, extensive engagement with highly theory specific literature was intentionally limited during the early stages of the research process to maintain theoretical openness and reduce the risk of imposing pre-existing assumptions or explanatory frameworks onto the data (Charmaz, 2006; Dunne, 2011). This approach supported the inductive development of concepts grounded primarily in participants' experiences and interpretations rather than being shaped by existing theoretical knowledge (Dunne, 2011; McGhee, Marland, & Atkinson, 2007). The second stage of literature review was completed after this study's data was collected and analysed to identify theories directly relating to hearing loss and mental wellbeing. These studies are discussed in Chapter 7.

The literature review searching for studies relating to hearing loss and mental wellbeing began in April 2018, to form a broad understanding of the topic area. Relevant articles were identified through searching six databases: EBSCO (1944–current), Global Health (OvidSP database, 1973–current), MEDLINE (Ovid, In-Process & Other Non-Indexed Citations, 1946–current), PsycINFO

(1800s–current), PubMed (1996–current), Scopus (1983–current), and Web of Science (1899–current). An updated search was conducted in February 2021 and January 2022 using the same six databases. This literature review is presented in this chapter.

2.4.3 Defining Mental Wellbeing

The following section addresses the first review question by exploring how mental wellbeing has been conceptualised within contemporary psychological literature. Establishing how mental wellbeing is defined is important for understanding how the concept may relate to the experiences of people with hearing loss and identifying limitations within existing approaches

Various definitions of mental wellbeing have emerged over the years (Ryff, 1989; Dodge, Daly, Huyton, & Sanders, 2012; McGowan et al., 2018). Dodge and colleagues highlighted the historical challenge philosophers and researchers have faced when attempting to explain what mental wellbeing is. This can be dated back to Aristotle's (384BC- 322 BC) conceptualisation of *eudaimonia* which he used to refer to human happiness and prosperity, regarding it as the optimal goal for all humankind (Cummins, 2010; Huppert, 2009). Generally, wellbeing is described as being a subjective state involving elements of happiness, contentment or mental and physical health (Diener, 2009; Steptoe, Deaton, & Stone, 2015). Wellbeing can be influenced by external life stressors, distressing situations or health conditions amongst other factors (Diener, 2009).

Definitions of mental wellbeing have since evolved to recognise the impact of life challenges on an individual's mental state (Macintyre et al., 2017). The review by Dodge and colleagues (2012) concluded with their own definition of

mental wellbeing, suggesting that it is achieved when physical, social and psychological challenges are equally accounted for by physical, social or psychological resources, maintaining a state of homeostasis (Dodge et al., 2012). Homeostasis has also been identified in contemporary literature as a central factor to influence the state of wellbeing (Macintyre et al., 2017). It is achieved through a perceived balance in life, where a person's mental and physiological states are stable (WHO, 2004). Similarly, research has suggested that factors contributing to wellbeing include reaching potential, life satisfaction, contentment, and functioning positively on a personal and social level (Dodge et al., 2012; Huppert, 2009; Ryff, 1989). Defining mental wellbeing in relation to hearing loss is particularly complex due to its multidimensional nature, encompassing social, emotional, physical, and cognitive aspects influenced by hearing loss (Vercammen et al., 2020). Improved mental wellbeing has been related positively to social participation, and success in social engagements (Dammeyer, Chapman, & Marschark, 2018; Granberg & Gustafsson, 2021; Vercammen et al., 2020).

Activity has been identified as a significant element for mediating mental wellbeing (Holman et al., 2021). The less active an individual is in their life, and the less they engage in their preferred settings, hobbies, and social gatherings, the lower their reported mental wellbeing, regardless of age (Adams, Leibbrandt, & Moon, 2011; Whitelaw, Teuton, Swift, & Scobie, 2010). As hearing loss has been identified as a factor that can largely inhibit the ability to participate in everyday life by the ICF and numerous studies mentioned above, further implications of hearing loss on a PHL's life chances and daily state of mental wellbeing should be considered.

Due to a lack of consensus on a set definition of mental wellbeing, the current study identified the need to approach the concept of mental wellbeing without a pre-existing set definition. This study instead will be informed by the direct opinions of PHL participants, who will express in detail what mental wellbeing specifically means to them. A specific definition of mental wellbeing will thus be established during the interviewing process in the main study.

Throughout this thesis, a distinction is made between the concepts of mental wellbeing, mental health, mental health difficulties, and mental illness, as these terms are often used interchangeably within existing literature despite representing different constructs. Within the present study, mental wellbeing is conceptualised as a broader subjective and psychosocial state relating to emotional, psychological, and social functioning, including experiences such as fulfilment, resilience, social connectedness, coping, and quality of life. In contrast, mental health disorders or mental illness refer to clinically diagnosable psychological conditions, such as depression or anxiety disorders. While hearing loss has frequently been investigated in relation to mental health conditions within previous literature, the current thesis focuses primarily on understanding mental wellbeing as a broader lived and experiential construct. Nevertheless, the thesis acknowledges that experiences of mental wellbeing and mental health can interact and overlap within everyday life

2.4.4. Defining Mental Wellbeing Through the Voices of PHL

This study adopts a Grounded Theory approach to explore the lived experiences of individuals with hearing loss, particularly in relation to their mental wellbeing. Grounded Theory was chosen as it allows for the development of theory based on the perspectives of participants rather than

imposing preconceived frameworks. Given the variability in how hearing loss is experienced and its diverse impacts on mental wellbeing, it was essential to engage directly with individuals with hearing loss to understand their perspectives, coping mechanisms, and challenges. By prioritising the voices of this population, the study aims to construct a nuanced theoretical model that reflects their lived realities. Additionally, this approach allows for flexibility in conceptualising mental wellbeing, rather than relying on a rigid definition that may not fully capture the complexities of hearing loss and its psychological impact.

2.4.5. Emotions, Mental Wellbeing, and Hearing loss

Having outlined broader conceptualisations of mental wellbeing, the following section explores the emotional and psychosocial experiences associated with hearing loss. This section primarily addresses the second review question by examining how hearing loss may influence emotional, psychological, and social wellbeing.

As established from existing theories of what constitutes mental wellbeing, the emotions individuals experience daily can impact their state of wellbeing. Emotional responses to life events, social interactions, and personal challenges contribute to fluctuations in mental wellbeing, influencing both short-term mood and long-term psychological resilience (Holman, Ali, & Naylor, 2021). In the context of hearing loss, emotions such as frustration, embarrassment, anxiety, and sadness can arise from difficulties in communication, social withdrawal, and the stigma associated with hearing impairment (Holman, 2021; Holman, Ali, & Naylor, 2021). Conversely, positive emotions such as confidence, acceptance, and self-efficacy can emerge when individuals successfully adapt to their

hearing loss, access appropriate support, and develop effective coping strategies.

Hearing loss has been identified as a cause for PHL to feel negative emotions, which can distort their own self-image (Hetu et al., 1993). Some PHL report that unsuccessful attempts to take part in conversations lead to feeling socially inadequate, and increased occurrences of feeling incompetent for failing to comprehend certain spoken speech (Demorest & Erdman, 1987). Social exclusion and being “left out” have also been reported as dominant feelings experienced due to perceived failures in communication (Arlinger, 2003).

The negative consequences of hearing loss have been suggested to develop into negative feelings related to low self-esteem which can affect other aspects of a PHL’s life (Chen, 1994; Ciorba et al., 2012; Demorest & Erdman, 1987; Warner-Czyz, Loy, Evans, Wetsel, & Tobey, 2015). PHL feeling misunderstood by others can create feelings of devaluation (being less valued) and unfulfillment (low self-affirmation) (Armitage, Lees, Lewis, & Munro, 2017). PHL have also reported experiencing intense feelings of stress and overthinking on a daily basis (Jayakody et al., 2018). PHL imagine and sometimes relive feelings of embarrassment, mockery, and humiliation of mishearing during social communications (Danermark, 1998). Social isolation has been identified as an outcome of this, as PHL begin to feel lonely and experience diminished contact with others (Heffernan et al., 2016; Mick et al., 2014; Weinstein & Ventry, 1982). Social withdrawal is another related phenomenon that has been reported to regularly occur.

Some PHL prioritise avoiding social situations or any instances where they will be required to hear, to avoid experiencing the negative emotions associated

with these situations because of their hearing loss (Demers, Healthcare, & Putnam, 2013; Heffernan et al., 2016). They may ultimately develop a sense of aversion to being in similar social situations again, even if interactions involved close friends and family. Shame is a resultant feeling outlined as being significant in a PHL's view of their self and hearing loss (Danermark, 1998; Goffman & Carpenter, 1963). For individuals who do not wish for their hearing loss to be known, and who try to hide their impairment but are 'found out' because of their restricted listening ability, feeling ashamed is common (Danermark, 1998).

The decrease in one's ability to focus, due to low cognitive energy, has also been identified within the literature as a factor affecting emotional states, both on a psychological and cognitive level. Cognitive fatigue is commonly experienced by PHL in everyday interactions due to the cognitive demand resulting from the increased attention and focus applied to compensate for the decreased hearing ability (Holman, Drummond, Hughes, & Naylor, 2019). Maintaining this level of attention for a long period of time can cause cognitive exhaustion and overall decreased energy levels in PHL, resulting in a cognitive retreat where focus is lost or completely abandoned (Holman et al., 2019; Holman, Hornsby, Bess, & Naylor,2021). Interestingly, cognitive energy was outlined to be influenced by psychosocial factors also. Solidarity, companionship, and comradery in relationships are suggested to be primary sources of positive energy that establish a sense of comfort and wellbeing in PHL (Danermark, 1998). Due to hearing loss decreasing the quality of interactions, interpersonal bonds deteriorate, leading to an increase in negative energy experienced on emotional (Danermark, 1998), cognitive, and psychological states (Holman, 2021; Holman, Ali, & Naylor, 2021).

2.4.6. Under-researched: Mental wellbeing in relation to hearing loss

While the previous sections highlight important emotional and psychosocial consequences associated with hearing loss, the following section critically examines the limited research directly investigating mental wellbeing as a distinct construct within hearing loss research.

An important finding of this literature review is that there are very few studies that investigate the concept of mental wellbeing in relation to hearing loss. This phenomenon highlights a significant gap in research, as studies investigating the relationship between hearing loss and mental wellbeing remain limited. While existing literature has extensively explored the link between hearing loss and mental health conditions, such as depression and anxiety, there has been less focus on how hearing loss specifically impacts mental wellbeing as a broader, multidimensional concept. Mental wellbeing encompasses not only the absence of mental illness but also emotional, social, and psychological adaptation to life changes, including hearing loss. The lack of research in this area suggests a critical need for studies that explore how individuals with hearing loss define, experience, and maintain their mental wellbeing, beyond just the presence or absence of clinical mental health disorders.

The lack of research specifically addressing mental wellbeing suggests a neglect in exploring how PHL navigate their emotional and social lives, adapt to their changing identity, and maintain a sense of purpose and fulfilment. Given the significant life changes that accompany hearing loss, it is essential for future research to investigate how PHLs experience wellbeing, rather than limiting the focus to mental health disorders, which this study aims to do. Expanding the scope of research in this area could provide a more comprehensive understanding of the challenges and coping mechanisms associated with

hearing loss, ultimately leading to more holistic and person-centred support strategies.

Additionally, as evidenced through this literature review, many studies in the field focus on explaining the negative impacts of hearing loss on mental wellbeing such as isolation and anger. The following discussion however introduces a Salutogenic perspective to better understand how individuals with hearing loss may maintain wellbeing despite ongoing challenges. This approach shifts attention from deficit-focused understandings of hearing loss towards resilience, coping, adaptation, and the factors that support positive wellbeing experiences.

The Salutogenic approach (Eriksson & Lindström, 2007), should be considered when investigating hearing loss's impacts on mental wellbeing, to capture all aspects of the relationship whether positive, negative, or neutral, rather than solely examining distress and negative consequences of hearing loss. This strength-based approach highlights how individuals navigate their condition, adapt, and find ways to maintain or even enhance their wellbeing (Eriksson & Lindström, 2007). This aligns with Antonovsky's Salutogenic model, which emphasises sense of coherence (SOC): the ability to understand, manage, and find meaning in life's challenges. In the context of hearing loss, this perspective allows for an exploration of how PHLs develop resilience, seek support, adopt new communication strategies, and engage in positive reframing to maintain their overall wellbeing. By integrating this approach, studies could contribute to a more balanced and holistic understanding of the relationship between hearing loss and mental wellbeing, offering insights that can inform interventions aimed at enhancing coping strategies and fostering psychological resilience rather than merely addressing symptoms of distress.

2.4.7. Associations between Hearing Loss and Mental Health

The WHO emphasises that the ability to positively function on a personal and social level are what constitute an individual's positive mental health (WHO, 2004). This is reflected in the WHO's definition of mental health, describing it as the "*state of well-being in which every individual realises his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to her or his community*." (Galderisi, Heinz, Kastrup, Beezhold, & Sartorius, 2015; World Health Organization, 2004). This indicates that living with a hearing loss can impact an individual's ability to function in everyday life on both a social and personal level, causing them to become less active. If this inactivity persists it can impact mental wellbeing and quite possibly leads to mental health issues.

The most common mental health conditions associated with hearing loss are depression and anxiety (Blazer & Tucci, 2018; Rutherford, Brewster, Golub, Kim, & Roose, 2017). From as early as the 1980's, depression was found to be significantly more prevalent in people with hearing loss than in the general population. A study conducted by Thomas (1984) found that people with hearing loss were four times more likely to experience depression and anxiety than the general population (Blazer & Tucci, 2018; Thomas, 1984).

Mainly epidemiological studies have been used to investigate the relationship between hearing loss and mental health conditions. For example, the health ABC study conducted by Contrera and colleagues (Contrera et al., 2017) collected baseline measurements of depression and anxiety from 3075 well-functioning men and women. These baseline measurements were established through administering the Hopkins System Checklist (Derogatis, Lipman,

Rickels, Uhlenhuth, & Covi, 1974). Participants were asked to complete the same questionnaires 5 years later. Findings suggested that levels of depression and anxiety experienced by people with hearing loss significantly increased after the 5 years had passed (Contrera et al., 2017; Rutherford et al., 2017). It was identified that higher hearing thresholds were associated with higher levels of depression and anxiety (Blazer & Tucci, 2018; Contrera et al., 2017).

A separate study by Cosh and colleagues (2018) examined 8344 older adults with hearing loss, aged 65 and above, where self-reported dimensions of hearing loss were compared with depressive outcomes using the Centre for Epidemiology Studies-Depression Scale (CESD) (Cosh et al., 2018; Shafer, 2006), over 12 years with 2-3 year interval follow ups. The CESD assess four factors: interpersonal problems (item example: people dislike me), somatic symptoms (item example: restless sleep; concentration difficulties), positive affect (item example: enjoyed life; felt happy), and depressed affect (item example: lonely, fearful) (Shafer, 2006). Results outlined that there was no significant relationship between hearing loss and positive affects at baseline, and associations with positive affects decreased over time. A strong association was found between hearing loss and somatic symptoms, which increased over time. Hearing loss was also related to poor depressive symptoms at baseline and interpersonal problems, however, these relationships did not increase or become significant throughout the 12 years of assessment. This finding contradicts Contera and colleagues' who found that depression associated with hearing loss increased over time, and implies higher depressive symptoms associated with the earlier stages of experiencing hearing loss (Cosh et al., 2018). Despite this, both studies imply that if left untreated over a long period of time, particularly without assessment and treatment of somatic problems and

positive affect symptoms, hearing loss can continue to negatively impact an individual's mental health.

The literature suggests that having a sensory impairment could greatly predispose an individual to developing high levels of depression. Maharani and colleagues conducted an epidemiological study using data from the English Longitudinal Study of Ageing (ELSA), Health and Retirement Study, and the Survey of Health, Ageing and Retirement in Europe (SHARE) (Maharani et al., 2018). This included 45,805 respondents above the age of 50 from 19 countries in Europe and in the United States (Maharani et al., 2018). Whilst their study primarily investigated hearing and visual impairments as risk factors for developing dementia, they found that depression was an extremely significant risk factor for dementia. Individuals with both a hearing loss and high levels of depression were more likely to develop dementia than non-depressed counterparts (Maharani et al., 2018).

Interestingly, individuals that had a dual sensory impairment (both auditory and visual impairment) were more likely to develop dementia, and develop more severe levels of depression when both impairments were present than either alone (Maharani et al., 2018). This is an important consideration as the most common type of sensorineural hearing loss is presbycusis (age-related hearing loss) (Katz et al., 2009). A large proportion of the population of PHL are older individuals who, in addition to hearing loss, are likely to develop other sensory disorders such as visual impairment (Cook et al., 2006). Therefore, most PHL have an increased predisposition to developing mental health conditions, in addition to risk factors for other disorders associated with aging. Evidently, epidemiological studies have aided in establishing the association between

hearing loss and mental health. More in-depth explorations regarding the nature of this relationship and the different factors involved is needed. This will aid in identifying the underlying mechanisms that can be targeted for preventing risk factors associated with hearing loss and improving the mental health of people with hearing loss.

These observations directly align with the need for a new model to explain the relationship between hearing loss and mental wellbeing. Existing research often focuses on the development of mental health conditions such as depression and anxiety in PHL, but there is limited exploration of how hearing loss impacts broader aspects of mental wellbeing, such as social connectedness, identity, and emotional resilience. The link between hearing loss, reduced social participation, and inactivity highlights the necessity of understanding how these changes influence an individual's overall sense of wellbeing. A new model is needed to capture the complexities of this experience, illustrating not only how hearing loss can lead to mental distress but also how certain factors, such as coping strategies, support systems, and societal attitudes, can either mitigate or exacerbate its impact. By developing an explanatory framework, this research provides a more nuanced understanding of the pathways between hearing loss and mental wellbeing, offering insights into how interventions can better support PHLs in maintaining their overall quality of life.

2.4.8. Degree of Hearing Loss & Impacts on Mental Health

Specific degrees of hearing loss have been investigated in relation to their impact on PHL’s mental health. Most research has focused on severe to profound hearing loss, with an association between increased depression levels and experiencing profound hearing loss have been reported (Arlinger, 2003;

Knutson & Lansing, 1990; Monzani, Galeazzi, Genovese, Marrara, & Martini, 2008). Severe hearing loss has also been associated with increased depression and anxiety levels in PHL in two studies (Garnefski & Kraaij, 2012; Jayakody et al., 2018). Despite mild to moderate hearing loss (MMHL) being the most common degree of hearing loss, accounting for 92% of all hearing loss cases (Archbold et al.,2015), whether MMHL is related to mental health disorder is under-researched. Very few studies have investigated this particular group in relation to mental health, but epidemiological studies continue to report associations between the two phenomena (Chen, Liang, Ou, & Cai, 2013; Gopinath et al., 2009).

The impact MMHL has on individuals is greatly underestimated perhaps because the term 'mild' hearing loss suggests that it is not impactful or significant (Monzani et al., 2008; Timmer et al., 2015). Many people with MMHL have significant difficulties in communication, which can result in reduced speech understanding, especially when the speaker is not facing the person with hearing loss (Archbold et al., 2015). Lutman and colleagues (1986) in their study of hearing loss and subsequent participation restrictions involving 1691 people with hearing loss, established that hearing loss even at a 15 dB threshold could have significantly disabling effects on an individual (Lutman, Brown, & Coles, 1987; Timmer et al., 2015).

2.4.9. Addressing mental wellbeing concerns in Audiology

Building upon the previous discussion of wellbeing and coping, the following section examines the extent to which mental wellbeing is currently recognised and addressed within audiological research and clinical practice. To improve rehabilitation outcomes for people with hearing loss, the current British Society

of Audiology clinical guidance emphasises the importance of providing audiological guidance in aiding the patient's adjustment to their psychological, social, and/or emotional concerns that particularly relate to their hearing loss (British Society of Audiology, 2016). Audiological rehabilitation's main aim is to reduce the participation restrictions a patient may experience due to their hearing loss and aid them in overcoming hearing loss' related limitations in everyday life (Aazh & Moore, 2017). As discussed, this is done predominantly through providing a hearing device such as a hearing aid or cochlear implant that can be utilised to optimise hearing (Aazh & Moore, 2017).

With increasing emphasis on patient centred care in audiology, the importance of addressing mental wellbeing impacts of hearing loss as part of conversations held during audiology appointments has been identified as integral for aiding the patient's adjustment to their impairment, and rehabilitation journey (Grenness, Hickson, Laplante-Lévesque, & Davidson, 2014; Laird, Bennett, Barr, & Bryant, 2020; Reed, 2018). However, evidence suggests that contemporary audiology practice prioritises a technological focus, and providing the patient with the appropriate assistive hearing device, and that any mental wellbeing concerns are rarely acknowledged and thus scarcely addressed (Bennett, Barr, et al., 2021; Ekberg, Grenness, & Hickson, 2014; Caitlin Grenness, Louise Hickson, Ariane Laplante-Lévesque, Carly Meyer, & Bronwyn Davidson, 2015; Laird et al., 2020; Reed, 2018). Within Audiology clinics, audiologists have expressed concerns that they are under-trained, and lack knowledge of how to identify when a participant is in need of psychosocial adjustment conversations in relation to their hearing loss, and when identified, they are unaware of who to make referrals to (Bennett, Barr, et al., 2021; Bennett, Donaldson, et al., 2021). A need for further rigorous research that

enables a better understanding of the relationship between hearing loss and mental wellbeing has been emphasised, to enrich understandings of common psychosocial impacts of hearing loss, and further efforts in facilitating understanding how this can potentially impact patients' audiological rehabilitative journey.

It is challenging to support the mental wellbeing of PHL if understandings of their experiences of mental wellbeing have not been pre-established. In order to accurately comprehend how hearing loss can impact people's lives, it is essential to understand what mental wellbeing means for PHL, to then establish whether mental wellbeing is impacted and what support is needed.

2.4.10. Conclusion

Hearing loss has been found to impact a person with hearing loss on many levels including, economic, physical, interpersonal, occupational, social, psychological, and emotional. Negative impacts of hearing loss in each of these domains can lead to decreased quality of life and impact mental wellbeing.

Performing this literature review informed the formation of my audiological knowledge. It also facilitated my understandings relating to the everyday impacts of hearing loss. I found that while research has explored the daily communication challenges faced by people with hearing loss (PHL), fewer studies have examined the broader psychological impact. The studies that do exist often focus on clinical measures of hearing loss rather than self-reported lived experiences. Additionally, while associations between hearing loss and conditions like depression and anxiety have been documented, little research has explored the underlying mechanisms or individual differences that may influence this relationship.

Furthermore, no existing theoretical model fully explains how various factors, such as identity changes, coping strategies, and social interactions, interact to shape the mental wellbeing of PHL. This gap in theoretical understanding formed the basis for this study, which aimed to construct a model that accounts for the complex, multifaceted impact of hearing loss on mental wellbeing.

Despite understanding that hearing loss is related to these factors, the dynamics of their relationship and how they can impact the mental wellbeing of PHL is still not fully understood. Additionally, there are limited studies that directly investigate this relationship. Most studies conducted investigating hearing loss and quality of life have been quantitative studies with large sample sizes that do not enable a deeper insight into the lived experience of hearing loss and mental wellbeing. Despite the literature clearly outlining that hearing loss can negatively impact PHL, the impacts of mental wellbeing are still not established enough to be detected in clinical settings.

Through this literature review I came to the realisation that research investigating the construct of mental wellbeing in relation to hearing loss are scarce and thus this area is under-researched. This was then fully informed by the participants' accounts, experiences, and analysed data, and was significant in establishing fundamental understandings of mental wellbeing and hearing loss that have not yet been fully captured in the field.

2.4.11. Aims & Objectives

The overall aim of this PhD was to identify how and why hearing loss can impact an individual's state of mental wellbeing. This was achieved through two studies; a systematic review, a grounded theory study with semi-structured

interviews, and focus groups to evaluate relevance and applicability of the developed grounded theory. These specific objectives are outlined in Table 2.1.

The aims and objectives of this thesis were developed through a focused literature review that identified key gaps in the application of grounded theory methodology to hearing loss research, particularly in understanding the relationship between hearing loss and mental wellbeing. Existing research on mental wellbeing in people with hearing loss has often lacked a comprehensive, theory-driven approach, with no comprehensive theory currently existing that explicates this relationship.

A systematic review of grounded theory studies was a crucial first step in addressing these gaps. While existing guidelines for conducting grounded theory research provide a general framework, their application in audiology research was inconsistent and varied in quality. By systematically reviewing how grounded theory has been used to investigate hearing loss, this thesis was able to identify methodological strengths and weaknesses, leading to the development of a set of guidelines to improve future grounded theory research in audiology. Furthermore, the objectives of this research were structured to build upon the findings of the systematic review, ensuring that the study design, data collection, and analysis aligned with best practices in grounded theory methodology. The development of an explanatory framework for understanding the relationship between hearing loss and mental wellbeing was informed by both the systematic review and primary data collection, ensuring a rigorous and well-founded theoretical model.

The final objective, which focuses on evaluating the credibility, originality, resonance, and usefulness of the constructed grounded theory, ensures that

the developed framework is robust, practically applicable, and contributes meaningfully to both research and clinical practice. This evaluation aligns with established grounded theory quality criteria, reinforcing the rigor and impact of the study.

Table 2.1. Summary of research methods and objectives

Chapter	Method	Objective(s)
2	Systematic Review investigating hearing loss research studies that have applied grounded theory methodology	• Explore how grounded theory methodology has been applied to investigate hearing loss • Use the findings of the review to develop a set of guidelines to aid the future high-quality application of grounded theory methodology to hearing loss research.
3	Semi-structured interviews with People with hearing loss	• Explore experiences of mental wellbeing in people with hearing loss. • Develop a concept of mental wellbeing in people with hearing loss and identify factors that influence its state. • Construct an explanatory framework that explains the relationship between hearing loss and mental wellbeing.

4	Two focus groups for evaluating the developed grounded theory, one with PHL and one with Audiology Clinicians	• Evaluate the formed grounded theory that explains the relationship between hearing loss and mental wellbeing • Assess the credibility, originality, resonance, and usefulness of the formed theory and evaluate how well it works

3. CHAPTER 3: AN INTRODUCTION TO GROUNDED THEORY METHODOLOGY AND A SYSTEMATIC REVIEW OF ITS' APPLICATION WITHIN HEARING LOSS RESEARCH

3.1. Grounded Theory: An Introduction

The main aim of this PhD was to develop a rigorous explanation of the factors involved in hearing loss relating to mental wellbeing. The qualitative methodology of grounded theory was chosen to achieve this. This is because grounded theory would enable the development of a novel theory that explains how hearing loss could impact mental wellbeing, whilst also providing clear stages and suggestions to enable a rigorous theory formation process.

The present chapter provides detailed background behind the establishment of the grounded theory methodology, and the methodological principles it involves. This in-depth focus was taken as grounded theory is the primary methodology followed throughout this project. My philosophical stance as a researcher is also highlighted in this chapter, as I also outline the different principles I follow as a qualitative researcher. This chapter also presents a systematic review

conducted which investigates how grounded theory methodology has been used to investigate hearing loss.

Grounded theory is used when an in-depth theory is needed to establish new understandings regarding a specific phenomenon (McCann & Polacsek, 2020). The methodology is used to create novel theories rather than test existing ones (Glaser & Strauss, 2017). The theories formed using grounded theory methodology exclusively stem from within the data, therefore the methodology acts as a thorough and substantiated approach for effectively exploring and explaining phenomena (Charmaz, 2006; Glaser et al., 1968).

Grounded theory has been defined as the systematic exploration of data in an open-minded, comparative, and rigorous manner for developing a novel theory that is purely grounded within the data (Charmaz, 2006; Glaser & Strauss, 2017b; Strauss, 1967). Through applying grounded theory, people's experiences, and occurring social processes can be understood by integrating definitions and meanings from the perspective of individuals from the target population (Creswell & Miller, 1997; 2000). This can include how the phenomenon occurs, affects individuals/ situations, or actions produced in response to this phenomenon (Creswell & Miller, 2000). Critical to the methodology is that the novel theory stems purely from the data collected, and is not influenced by any pre-established knowledge or theories (Charmaz, 2006; Glaser & Strauss, 2017b; Strauss, 1967). Grounded theory incorporates popular analysis techniques utilised by qualitative researchers across disciplines (Gibbs, 2010). It specifically involves the rigorous exploration of data in an open-minded, efficient, and systematic approach for forming a novel

theory (Charmaz, 2006; Glaser et al., 1968; Thornberg, Perhamus, & Charmaz, 2014a).

3.2. History of Grounded Theory

Sociologist colleagues Barney Glaser and Anslem Strauss originally formed grounded theory methodology in 1967, after conducting observational research which investigated the experiences of terminally ill patients. They identified that the observational methods limited them to descriptive insights and did not provide them with any in-depth insight into their past experiences (Glaser, Strauss, & Strutzel, 1968). They identified a need for the development of a systematic methodology that produces both descriptions and informative explanations of the processes under investigation (Charmaz, 2006; Glaser et al., 1968; Morse et al., 2016).

This led to the creation of the first grounded theory school which was established through a collaborative agreement between Glaser and Strauss (Kenny & Fourie, 2014). After this original school was created, Glaser and Strauss' came to largely disagree on fundamental philosophical aspects regarding the grounded theory approach, with Strauss wanting to develop the approach further, and Glaser adamantly sticking to the original formation (Kenny & Fourie, 2014). They both chose to dissolve their union, and each continued their grounded theory journey separately (Charmaz, 2008b; Kenny & Fourie, 2015). Glaser maintained the original philosophical stance of classic grounded theory, which aimed to discover an objective truth using systematic methods, now renamed as the Glaserian school (Charmaz, 2008b; Glaser & Strauss, 2017b; Glaser et al., 1968; Kenny & Fourie, 2015). This school believes that a researcher can successfully remove their influence from an

investigation and be able to achieve objective truths using constant comparative analysis (CCA) and substantive coding (Glaser, 2007).

Strauss formed the Straussian school of grounded theory, adopting symbolic interactionist philosophy, which emphasises that knowledge is established through social interactions and communication (Glaser, 2005; Strauss & Corbin, 1997). It suggests that the theory formed, although able to achieve validity, is influenced by the researcher's own bias interpretations (Annells, 1996), and establishing one generalisable truth is not possible as it is a subjective process (Corbin & Strauss, 1990; Strauss & Corbin, 1997).

Charmaz, a prominent student of both Glaser and Strauss, followed her teachers' footsteps in implementing grounded theory to investigate the long-term effect of chronic conditions. Through her research she came to evolve the methodology for a third time, maintaining principles from both theory founders with a new emphasis on constructivism. This suggests that reality is socially constructed by individuals within social contexts and through shared experiences with others (Charmaz, 2006, 2008a). Therefore, the constructivist school outlines that a theory is mutually constructed through interactions between the researcher and the research subject, acknowledging the influence the researcher has during theory formation (Charmaz, 2006, 2008a). Unlike the Straussian school, the Constructivist school emphasises the importance of fluidity during theory formation, suggesting that rigid analytic coding can hinder researchers from fully engaging with the data (Charmaz, 2008a; Kenny & Fourie, 2015). For a summary of the three schools see Table 3.1.

Table 3.1. The three schools of grounded theory methodology

Dimensions of Comparison	Classic/ Glaserian School (1967)	Straussain School (1990)	Constructivist School (2006)
School founders	Barney Glaser & Anselm Strauss	Anselm Strauss & Juliet Corbin	Kathy Charmaz
Philosophical stance	Empiricism & Interactionism & Constructivism & Soft Positivism	Symbolic Social Interpretivism	Symbolic Interactionism
Aim	Observe patterns of behaviour within a social context & discover a grounded theory	Explain social phenomena & create a grounded theory	Examine actions and social processes & construct a grounded theory
Philosophical principle	Knowledge can be objectively measured and is formed based on an individual's experience	Knowledge is subjective and socially constructed. Establishing one truth is impossible	Knowledge is subjective and is constructed by both the participant's experiences and the researcher's own understandings
Analysis and Coding Techniques	Open, selective, and theoretical coding	Open, selective, and axial coding (theory modelling) with matrix building	Initial, focused, and theoretical coding
Researcher's influence	Passive: Researchers can completely detach themselves from their research and have no influence	Active: Researchers cannot detach themselves from their research and will always influence the research process and findings	Active: A comprehensive truth is pursued; however, it will only be reflective of the social context and group studied

Literature Review	Perform literature review only after data has been collected and analysed	Preliminary literature review can be formed before data collection to enhance theoretical sensitivity. More indepth review conducted after data analysis	Preliminary literature review can be formed before data collection to enhance theoretical sensitivity. More indepth review conducted after data analysis
Grounded theory emphasis	*Constant comparative analysis*: constantly comparing data and outcomes to establish objective knowledge	*Reflexivity*: researcher provides reflections on the process of data collection, analysis, and recognises how they influence this process	*Constant comparative analysis, reflexivity, theoretical sampling* (knowledge is pursued and collected through recruiting different samples and investigating different concepts to develop the theory)

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3.3. Philosophical Underpinnings of the Research and Researcher

Within the field of social sciences, various philosophical underpinnings exist that determine the methodological approach adopted for conducting research. Any researcher has their own personal ontological view of the world. Ontology is the study of being. It involves the assumptions an individual forms on what the world is like, and their perceptions of reality (Della Porta & Keating, 2008). Epistemology on the other hand involves attempting to understand why the world is the way it is, and investigating how reality came to be that way (Della Porta & Keating, 2008). The epistemological stance of a grounded theorist can determine the grounded theory approach they adopt to pursue their research, as it can influence how they believe knowledge should be accurately obtained (Charmaz, 2006; Della Porta & Keating, 2008). This grounded theory project follows the constructivist school of grounded theory as outlined by Charmaz (2006). The constructivist philosophy emphasises that knowledge is socially constructed and influenced by an individual's experiences, personal, and social context (Charmaz, 2006). It is based on the principle that understanding a phenomenon can be formed from an individual's experiences of their specific environment.

The constructivist school applies Blumer's philosophical principles of Symbolic Interactionism (Blumer, 1969). Symbolic interactionism suggests that individuals act based on the accepted meanings they've constructed of the world (Salvini, 2019). Interactions in this world are socially constructed and based on symbolic indications that are mutually accepted and understood by each recipient (Blumer, 1969; Salvini, 2019). Research following Symbolic interactionism, investigates phenomena directly, without the use of artificial simulation in research laboratories. This is done by the

grounded theorist to facilitate capturing understanding regarding phenomenon as they would occur in the real world.

Social constructivism occurs when the subsequent grounded theory formed is constructed by both the participant and the researcher during the data collection process in a balanced manner. Charmaz suggests that research established using social constructivism can be empowering for participants as they are encouraged to express their opinions fully, with no pre-existing research ideologies or agendas being imposed on them (Charmaz & Belgrave, 2012).

The constructivist philosophical approach was specifically chosen to be followed in this research, applying both symbolic interactionism and social constructivism. Unlike positivism declaring that only one absolute reality exists, or interpretivism that believes that ‘true’ knowledge is unattainable (Charmaz, 2006; Meston & Ng, 2012), constructivism assumes that there is a constructed reality that is shaped by experiences which can be explored and generalised within a specific context (Charmaz, 2006). Constructivism bridges the gap between both interpretivism and positivism and enables the adoption of a flexible yet comprehensive mind-set for conducting research. It allows a researcher to listen to the expert experiences of individuals who are knowledgeable regarding a phenomenon and enables knowledge to be obtained through accepting their experiences as a reality that provides the insight to understand how this phenomenon came to occur.

3.4. The Rigorous Stages of a Grounded Theory Study

Conducting research using grounded theory involves precise and systematic data collection and analysis stages. An important stage of conducting grounded theory

involves simultaneously analysing the data during the data collection period (Charmaz, 2006). This is for the researcher to begin developing understandings of the phenomena under investigation as data is collected. Through reaching initial understandings and identifying concepts of interest, the prevalence and importance of these concepts in relation to the theory being developed can be established through the *constant comparative method*, which is central to grounded theory. It involves constantly comparing the data being collected, and actively contrasting the similarity and differences of participants' experiences (Charmaz, 2006).

Establishing the prevalence of certain processes/factors through data analysis, can enable the theorist to expand on these emerging factors in further interviews, or return to previous participants to clarify and expand on concepts even further. This process is termed the *theoretical sampling* process (Charmaz, 2006; Charmaz & Belgrave, 2012; Glaser & Strauss, 2017b). The literature alludes to two main types of theoretical sampling, 1) conceptual sampling which involves gaining elaborations of concepts/ experiences from participants to develop the theory further, and 2) participation sampling (pursuing certain participants/ groups to refine the theory under construction (Charmaz, 2006). See Figure.2.1 for a visual representation of the grounded analysis stages.

The analysis of data in a grounded theory project can involve qualitative analysis such as inductive thematic analysis (Charmaz, 2006). This involves the researcher remaining open to codes and developing findings that emanate purely from within the data, which is well-suited for the principles of grounded theory (Clarke & Braun, 2017). Deductive thematic analysis is less encouraged for grounded theory projects, especially in the beginning of the analysis process, as it would involve pre-set directions of what to search for in the data (Clarke & Braun, 2013). Thus, there is the

risk of overlooking other possible factors that are more appropriate for the theory being formed.

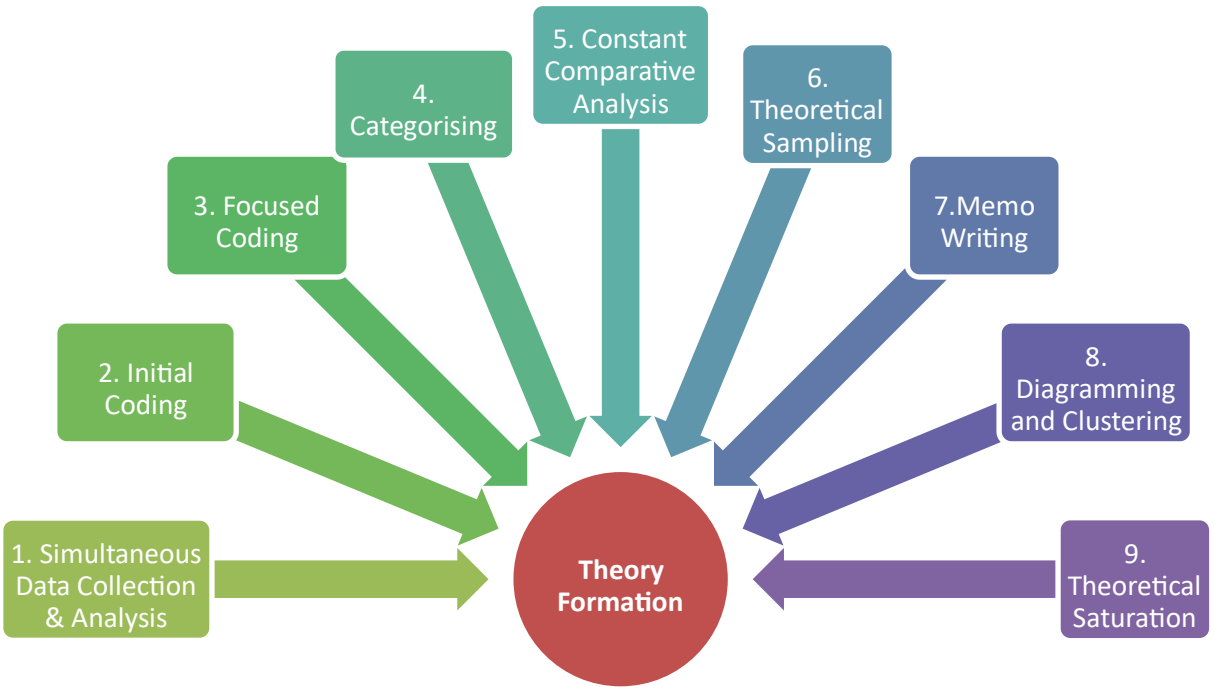


Figure 3.1. Visual Representation of Grounded theory stages, adapted from Charmaz (2006)

Grounded theory analysis techniques differ according to the grounded theory school the grounded theorist follows. As this study followed Charmaz's constructivist school of grounded theory, the study applied three main coding techniques. The first was initial coding. This involves adding codes which capture meaningful and interesting data by reading the data intently, line by line, and actively naming the data with labels that stay close to the participants' own words (Charmaz, 2006). The depth of this process can vary across qualitative analysts, as some can suffice with one all-encompassing label that captures the phenomena, however my analytical approach tends to be more detailed, with the addition of multiple codes to capture the different dimensions of one extract of data. Secondly, focused coding was applied, where the most significant codes

emerging across interviews, as identified through the initial coding phase, were revisited, and analytically reviewed to begin building subthemes and categorising data in a more informative manner (Charmaz, 2006; Charm The PRISMA flow diagram az & Belgrave, 2012). These codes were then categorised into broader themes and subthemes, in relation to their role in describing the targeted phenomena, in this case explaining how hearing loss can impact a person with hearing loss' mental wellbeing.

It is recommended that the grounded theorist makes memos of their ideas and understandings in order to capture the process through which these understandings develop. Memos can be taken after the interview, to reflect on the content, and note how the information shared by the participant was articulated and how it influenced the researcher's own understandings, ideas, and feelings. Memos of ideas were also written throughout and used as part of analysis in which the significant experiences, concepts and elements are highlighted, contemplated, and discussed. Memo-writing also allowed for the identification and expansion of ideas and is therefore an integral part of this study (Charmaz, 2008b). These different elements of the grounded theory analysis process are implemented to reach theoretical saturation which would occur when the same information, concepts and ideas are being repeated and the theory cannot be developed any further.

3.5. Applications of Grounded Theory Methodology to Investigate hearing loss: a methodological Qualitative Systematic Review with Developed Guidelines

3.5.1. Background

During the first months of this PhD, the research project was still being designed, and familiarisation with the ground theory methodology was undergoing. It became apparent through reading that the systematic and rigorous methodological processes in grounded theory are what were crucial for the final quality of the study. The in-depth reading of grounded theory ignited an interest to explore how grounded theory has already been applied as a methodology in the hearing loss research. Learning the level of applicability of grounded theory studies in the field so far, whilst identifying how their methodological applications influenced the research quality seemed beneficial as since the grounded theory study was still in the stage of design. Thus, these learnings are what would act as this study's own exclusive guide into how to complete a robust grounded theory. Below is the full systematic review paper that has been published (Ali, et al., 2024). Permission to include the published paper within this thesis was confirmed in accordance with the publisher's copyright and self-archiving policies.

3.5.2. Introduction

The rise in qualitative studies in the hearing loss research is largely due to an enhanced recognition of the value, and insight they enable. Notably, this increase in popularity facilitated qualitative methods becoming more accepted and trusted within the field (Knudsen, Laplante-Levesque, et al., 2012). Despite the usefulness of qualitative methods, it's quality stems from the authors understanding and embracement of the appropriate research philosophy depending on the qualitative methodology they're using (Creswell & Miller, 2000). Particularly within scientific

fields, including audiology, many researchers adopt a positivist philosophy, which focuses on objective and scientific standpoints. This can lead to decreased flexibility and subjectivity which are central to interpretive philosophy and are processes which underpin qualitative research (Knudsen, Laplante-Levesque, et al., 2012). Therefore, an aim for this systematic review is to provide insight into the state of applications of the qualitative research methodology of grounded theory in the field of hearing loss.

The necessity of evaluating the quality of grounded theory methodology within studies has been emphasised since its creation by the founders (Glaser et al., 1968) and contemporarily, also by researchers across disciplines (Urquhart, Lehmann, & Myers, 2010), such as physiology (Ali, May, & Grafton, 2018; Hutchison, Johnston, & Breckon, 2011), psychology (Weed, 2009), nursing (Lazenbatt & Elliott, 2005; McCann & Polacsek, 2020), business and management (Christiansen, 2011; Douglas, 2003), and dental medicine (Sbaraini, Carter, Evans, & Blinkhorn, 2011). Assessing the quality of grounded theory methodology is essential for studies, ensuring that the application of the core principles remains consistent across the three grounded theory schools (McCann & Polacsek, 2020; Timonen, Foley, & Conlon, 2018). This is particularly important given that a lack of consistency in the application of grounded theory methodology has been reported in healthcare research (Hussein, Hirst, Salyers, & Osuji, 2014; Timonen et al., 2018). This consequentially decreases the value and trustworthiness of emerging theories from the research and can lead to them being classified as unreliable (Berthelsen, Grimshaw-Aagaard, & Hansen, 2018; Morse et al., 2016; Timonen et al., 2018).

In 2018, the first Guideline for Reporting, Evaluating, and applying the core principles of Grounded Theory studies (GUREGT) was created (Berthelsen et al.,

2018). GUREGT is used to assess the quality of a grounded theory study by evaluating the depth of applications of the 12 core principles of grounded theory. The main GUREGT components are: 1) Study aim: study should aim for theory formation; 2) Philosophical framework: study should adopt the correct philosophical framework based on the school of grounded theory followed; 3) The researcher's role: study should address the researcher's role through reflexivity; 4) Data collection: study should simultaneously collect and analyse data; 5) Memos: study should make memos throughout the research process; 6) Sampling procedures: studies should apply theoretical sampling, in which significant samples and concepts are pursued and explored further; 7) Theoretical saturation: studies should reach theoretical saturation, i.e. no new information is being attained through data collection; 8) Analysis & coding: study should apply the appropriate analysis and coding techniques based on the school adopted; 9) Review of literature: study should either avoid or initially review the literature based on school followed; 10) Results/ the theory: study should clearly and fully outline the results/ theory developed; 11) Discussion: study should discuss key links between theory components and established literature; 12) Evaluation criteria: study should apply the appropriate evaluation criteria to evaluate the theory formed and establish its overall trustworthiness/ validity. See appendix A. for the GUREGT tool containing more specific details and how each principle is evaluated.

Despite hearing loss also being a chronic condition, the numerous reviews systematic conducted that assess the quality of grounded theory applications in this field haven't considered hearing loss for review, and thus have overlooked including audiology studies into their reviews (Baker & Stern, 1993; Conrad, 1990; da Silva

Barreto et al., 2018). It has also been recommended for researchers in the hearing loss research to ensure methodological quality of their studies (Knudsen, Laplante-Levesque, et al., 2012), and avoid creating misinformed or poorly constructed theories that are misleading and fail to enrich existing knowledge (Dellve, Henning-Abrahamsson, Trulsson, & Hallberg, 2002; Hallberg, 2006; Meston & Ng, 2012). Therefore, this systematic review was the first to assess the methodological quality of grounded theory studies within hearing loss research, informing future applications within the field. The primary aim of this review was to critically assess the methodological quality of grounded theory applications in hearing loss research using the GUREGT tool. Secondary aims sought to (i) describe how grounded theory methodology has been applied to investigate hearing loss, and (ii) produce recommendations to guide researchers investigating hearing loss using grounded theory methodology with a view to maximise future research quality.

3.5.3. Methods

This systematic review was conducted and reported in compliance with the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) checklist (Moher et al., 2015). The systematic review protocol was prospectively registered (PROSPERO: CRD42019134197) and published in a peer-reviewed journal (Ali, Wright, Charnock, Henshaw, & Hoare, 2020).

Search Strategy

Peer-reviewed journal articles were identified through searching ten databases: Applied Social Sciences Index and Abstracts (1987–current), British Nursing index (1994– current), Cumulative Index to Nursing and Allied Health Literature (1961–current), EBSCO (1944–current), Global Health (OvidSP database,

1973–current), MEDLINE (Ovid, In-Process & Other Non-Indexed Citations, 1946–current), PsycINFO (1800s–current), PubMed (1996–current), Scopus (1983–current), and Web of Science (1899–current). Google Scholar was also used for forward citation tracking. A second search was conducted in March 2020, and a final search was conducted in August 2021 (See Appendix B. for Search Strategy).

Study Selection

A standardised approach was taken to assess the eligibility of records identified. Screening of titles and abstracts was performed independently by two reviewers (DH; YHKA), and differences were resolved through discussions with a third reviewer (HH). Full text screening was also performed independently (HH; YHKA) and differences were quickly resolved during a discussion between the two researchers.

For inclusion, studies had to have used grounded theory methodology whilst citing appropriate references relating to the methodological approach. Studies also had to be classified as hearing loss research, this is defined as research investigating processes related to hearing loss in PHL, CPs or HCPs, with a particular focus on understanding the experiences, challenges, and impacts of hearing loss.

Methodology: studies were included if they used grounded theory as either the main methodology, or as a secondary methodology embedded within overarching qualitative

approach such as phenomenology, ethnography, case studies or narratives. Studies had to explicitly refer to using grounded theory during data collection and/ or analysis for inclusion. This was assessed during full text screening. Studies that did not state using grounded theory were excluded. *Study design*: qualitative studies, or mixed methods studies using both qualitative and quantitative methods whilst applying grounded theory were included. Purely quantitative studies that did not use grounded theory were excluded. *Sample*: Only studies involving adults with hearing loss were included, as they were the specific population of interest, and because experiences of hearing loss between childhood and adulthood can differ greatly. Any studies that had PHL experiencing tinnitus were also excluded due to experiences of living with differing greatly to just living with hearing loss, and because not all people that have tinnitus have a hearing loss this the group went beyond the scope of the review. *Data format*: grey literature such as conference abstracts, books chapters, case reports, practice guidelines, and studies reporting expert opinion were excluded. This was due to grey literature not reporting primary research studies (e.g., book chapters, expert opinion pieces), which thus lack sufficient detail to meet inclusion criteria or to conduct a detailed evaluation of the study (e.g. conference abstracts) (R. J. Adams, Smart, & Huff, 2017). *Date of publication*: studies published prior to 1967, the year grounded theory was first introduced (Glaser et al., 1968) were excluded. *Language*: Only studies published in English were included. Data screening, and detection of duplicate

studies were conducted using Covidence. See Figure 3.2 for the study filtration process based on the inclusion and exclusion criteria.

Data Extraction

Data were extracted independently by two reviewers (HM, YHKA), into a template excel spreadsheet (See example supplemental appendix C). Only exact information was extracted, and if the appropriate data had not been reported, it was documented and written as “not stated”. Any variance in the data extracted was discussed between reviewers until consensus was reached.

For all included studies, the following data were extracted:

i. Article characteristics; authors, title, year of publication, journal, funding, and conflicts of interest, ethical approval.

ii. Aims and objectives and type of hearing loss being investigated.

iii. Population information; general characteristics, type of participant (i.e., PHL, CP, audiologist, healthcare practitioners such as audiologists, GPs, ENT specialists and hearing therapists), hearing loss characteristics (i.e., severity, years of HL, device used), overall sample size.

iv. Study design and methodology, school of grounded theory followed.

v. Data collection

vi. Key findings

vii. Attempts to establish qualitative rigour and trustworthiness, limitations

viii. Advantages and disadvantages of grounded theory

ix. Conclusions and recommendations

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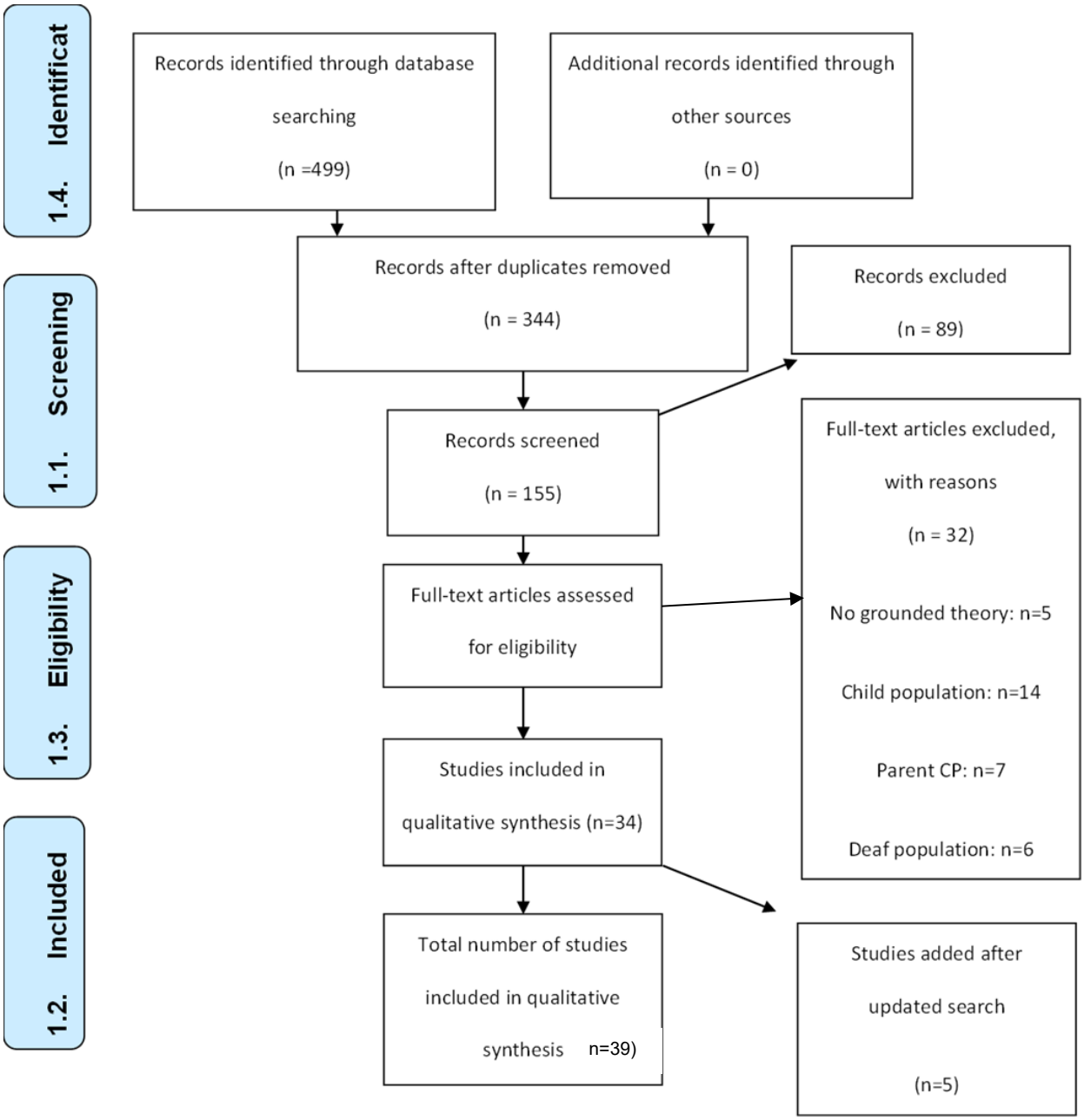


Figure 3.2. The PRISMA flow diagram of the study identification, screening, eligibility, and inclusion process within the systematic search of audiology studies using grounded theory.

Study Assessment

The GUREGT tool (Berthelsen et al., 2018) was used to determine methodological quality of the 39 included studies. Despite developing separately, all schools of grounded theory methodology share central grounded theory principles (Timonen et al., 2018), although applied differently (Hutchison et al., 2011; Morse et al., 2016; Smith & Biley, 1997). These principles have been identified as imperative for any research using the methodology for the formation of trustworthy and accurate new theories (Ali et al., 2018; Charmaz, 2006; Hutchison et al., 2011; Timonen et al., 2018).

The GUREGT tool was utilised due to its comprehensive approach and allowing for a methodological analysis of all included studies. GUREGT was developed to ensure rigour and help maintain theoretical sensitivity as previously there was no specific method to evaluate grounded theory research. It enables researchers to identify and report how well-grounded theory principles were applied in a study whilst identifying any missed information. An issue faced during study assessment was that some studies included did not specify which school of grounded theory they reported. Therefore, if a study did not state which grounded theory school they followed, the reference list and analysis techniques within the paper were reviewed. Studies that were vague and did not include details of a specific techniques or relevant references were categorised as having followed the Classical school.

All the included studies were independently analysed by four reviewers (HM, DH, DC, YHKA). To increase fidelity of the tool and standardise the comparison of study quality across included studies, a scoring system was introduced. The total scoring system in the present paper was to aid in the clear categorisation

of each study, and transparently reflect how the level of adherence to grounded theory principles affected the overall methodological score of each study. Each item was assessed and given a score between 0 – 2. Scores of 0 implied the criteria for that item was not met, a score of 1 suggested the criteria was met to some extent and a score of 2 was given when the item criteria were satisfied. An overall score was then calculated and as some items included multiple elements, the highest score a paper could receive was 50. The number 50 is a direct reflection of the number of grounded theory methodological considerations established in the GUREGT tool when they are fully met. There are 25 subitems on the GUREGT scale which can include two considerations in one subitem e.g. "*Is the selection of participants guided by theoretical sampling?*[1] *How?*[2]" For this subitem, the reviewer examined the two parts of this question and scored accordingly, whilst also providing evidence for the score. If, the study under review performed theoretical sampling and described how this was conducted, the subitem received a score of 2 for meeting both considerations. If theoretical sampling was stated to have been conducted, however no detail was available to explain how, a score of 1 was given. If theoretical sampling was not performed at all this item was scored a 0. This detailed process aided the reviewers to account for the completeness of reporting of each component of the subitems and ensured avoiding overlooking the multiple components under investigation grouped under one item. In addition to a score, some items required an explanation as to why and how the item was met. If there were discrepancies in the scoring system, a discussion was held between the secondary reviewer and the lead author, YHKA, until a final consensus was reached.

Category Analysis

Category analysis was conducted to establish some descriptive characteristics of included studies. The frequency of grounded theory application in audiology was established by reviewing the date of publication of each study. This was to understand the level of which grounded theory was utilised in audiology. Studies were also categorised according to the area of hearing loss it specifically researched. This was to establish the research topics within audiology that are commonly investigated using grounded theory.

Thematic analyses

Thematic analyses were conducted by two researchers separately performed thematic analysis of the data (YHKA; NW). Inductive thematic analysis as established by Braun and Clarke, was used as the primary analysis technique to code, thematise, and group themes relating to applications of grounded theory methodology (Braun & Clarke, 2014; V. Clarke & Braun, 2017). Line by line coding was applied by identifying the initial codes that related to grounded theory usage. These initial codes were then developed into more focused codes which identified recurrent interconnections between the initial codes. Categories were then formed from grouping focused codes, based on relevance and similarity. A higher-level categorisation was then performed to identify specific themes based on significance where the most influential processes were established. The aims of extracted studies were analysed to establish the overall areas of hearing loss that were mainly investigated using grounded theory. Multiple meetings were held between YHKA and NW to compare analysis, the formation of codes and themes, with 100% agreement on the final themes being achieved.

3.6. Findings

Descriptive characteristics

The search strategy identified 499 articles. After the removal of duplicates (344) 155 titles and abstracts were screened for potential eligibility. Following screening, 93 articles were excluded with the remaining 62 for full text review. All 62 articles were read in detail and scrutinised against the established inclusion/exclusion criteria to determine eligibility. A further 28 articles were excluded at the full text stage. A total of 34 studies met the final inclusion criteria after the initial search in June 2019. After conducting the initial search in June 2019, the review process was completed 4 months later in October 2019. An update search was conducted in March 2020, resulting in the identification of three new studies, and a further updated search was conducted in August 2021, where two new studies were identified (Dunsmore, Schneider, McKenzie, & Gillespie, 2020; Koerber, Moodie, & Jennings, 2021); Therefore, the total number of studies included in this review was 39.

Of these 39 studies, 31 used only grounded theory methodology, whereas eight reported studies that combined grounded theory with other qualitative research methods, and three were mixed methods (quantitative and qualitative) studies. Data were collected using interviews in 33 of the reported studies, with 32 studies adopting a semi-structured approach, and one adopting a structured approach, whilst six reported studies used focus groups. Although observational methods were not adopted as a standalone method, it was a secondary method of data collection in three of the included studies. All the included studies were peer-reviewed research articles.

Publication dates for included studies ranged from 1991 to 2021. From 1991 to 1995, four studies were published, and between 1996 and 2000, two studies were published. The number of published studies at the start of the 21st century (2001-2005) increased to five, and a further six studies were published between 2006 and 2010. Whilst only five studies were published between 2011 and 2015; this number tripled to 17 studies published between 2016 and 2021.

These publication dates display a significant increase in the adoption of grounded theory methodology for investigating hearing loss in adults across 30 years. Figure 3.3. displays the number of publications per year group.

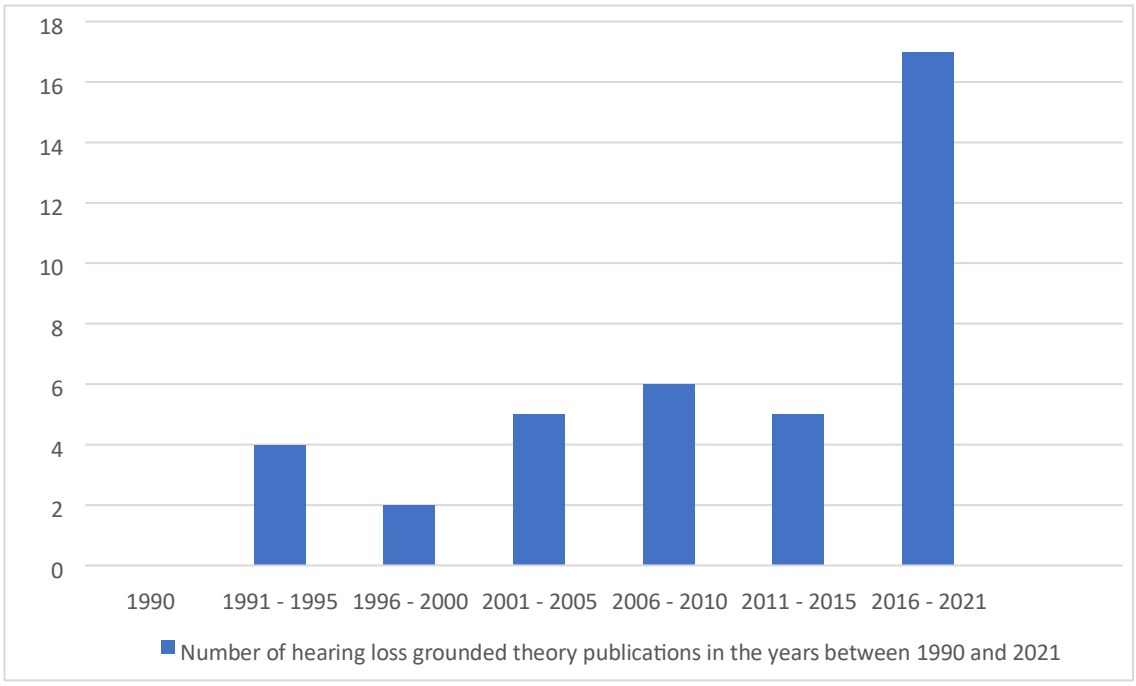


Figure 3.3. The increasing trend of adopting grounded theory methodology in hearing loss research

The 39 studies comprised of a total of 816 participants, with a mean of 20.9 (SD 28.6), and mode of 10, with 6 out of the 39 studies having a sample size of 10 participants. Sample sizes varied from 1 to 168. Of all 39 studies, three did not report the sex of participants (Gallagher & Woodside, 2018; Gfeller, Driscoll, & Schwalje, 2019; Shaw et al., 2013). Across the 36 studies that did report the

gender of the participants, 47.2% (385/816) were male, and 47.9% (391/816) were female, indicating a somewhat equal investigation and inclusion of both genders across the reviewed studies. Thirty-two of 39 studies reported age; the mean age of participants was 51.2 years (SD 15.30).

The reported degrees of hearing loss investigated varied from mild to profound depending on the area of investigation and aims of research, and studies focused on different characterisations of hearing loss. These included: profound HL (n=14 including CI related studies); presbycusis (n=7); severe HL (n=5); post-lingual sensorineural hearing loss (n=2); bilateral HL (n=1); noise induced HL (n=2); and acquired profound HL (n=1). Seven studies focused on cochlear implant users and the process of adapting to their device. Sample populations mainly consisted of three groups: PHL, CP, and healthcare practitioners. Most studies investigated only PHL (n=29); two studies investigated CP (spouses/ family carers of PHL), and four studies had a mixture of PHL and CP samples. One study included all three groups of PHL, CP and audiologist. Finally, three studies only included health practitioners as their sample, the types of roles included were audiologist, vocational rehabilitation therapist, and occupational therapist. Table 3.2. provides a full description of included studies and their application of grounded theory principles or lack thereof.

Table 3.2. Included studies and scored grounded theory applications.

Author(s) & Publication year	Area of Hearing loss Research	Aims	Sample	Methods	School of Grounded theory followed
Almotiri (2017)	Living with Hearing loss: Adaptations to life transitions	Explore the transitioning process of Deaf/ hard of hearing Saudi students in a foreign (US) university	N=5 Saudi national PHL students with studying at university in the US	Demographic questionnaire s and semistructured interviews	Constructivist school (stated)
Adler (2018)	Identity and hearing loss	Examine hearing loss identity, and identify how it impacts personality development	N=1 Female with severe to profound HL	Semi-structured interview & personality questionnaire	Constructivist school (implied)
Bell, Carl, and Swart (2016)	Identity and hearing loss	Assess how selfidentity influences PHL's choice to disclose disability	N=7 Students with hearing loss studying at University of Stellenbosch, South Africa.	In-depth interviews & demographic questionnaire	Constructivist school (stated)
Carson (2005)	Help-seeking behaviours for hearing loss	Identify help-seeking for age-related hearing loss in PHL with presbycusis	N=14 Female PHL with presbycusis n=7; family members n=6; audiologist n=1.	Participant observation & semistructured interviews	Pragmatic school (implied)
C. B. Cohen (2004)	Accessing health services with hearing loss	Explore the subjective experiences of deaf and hard-of-hearing individuals undergoing psychotherapy	N=10 PHL students attending Gallaudet University	Semi-structured interviews	Not stated

Cue et al. (2019)	Identity and hearing loss: Meaning of hearing loss	Understand what it means to be D/deaf, and how it is influenced by developed identities	N=2 PHL (out of 15 participants, the rest	Demographic questionnaire & narrative responses	Pragmatist school (implied)

				Semi-structured	
			identified as Deaf		
Dillon and Pryce (2020)	Decision-making of hearing device usage	Identify patient preferences during decision making on whether to uptake or reject CI.	N=15 PHL with Post-lingual sensorineural hearing loss	Semi-structured interviews	Pragmatist school (implied)
Dorminy (2014)	Identity and hearing loss	Explore the deaf/ hard of hearing identity formation as nonsigning PHL students integrate academically and socially into a predominantly signing Deaf university environment	N=10 This study includes eight female and two male American students all with some form of hearing loss.	Structured interviews	Constructivist school (implied)
Dunsmore et al. (2020)	The impact of hearing loss on relationships and CPs	To develop a grounded theory of the social experiences of those with DSI, their family carer and their dyadic relationship	N=8 CPS 2 M: 6 F, age range 52-92. Mean = 73.4 years, SD 14.1 years	Intensive semistructured interviews	Constructivist school
Fitzpatrick and Schramm (2006)	Healthcare professionals' perspectives on hearing loss considerations	Understand the experience of cochlear implantation in prelingual deafness from the perspective of service providers, i.e., audiologists	N=4 Four audiologists. The audiologists had a combined total of 21 years' experience in cochlear implants	Focus group & individual questionnaire Focus group & individual questionnaire	Stated constructivist school but followed are pragmatist school principles
Fitzpatrick and Leblanc (2010)	Decision-making of hearing device usage	Investigate decisionmaking in cochlear implant patients- why they discontinue the use of hearing aids after implantation	N=12 PHL with post-lingual deafness	Semi-structured interviews & survey	Pragmatist school (implied)

Gallagher and Woodside (2018)	Device adoption and usage	Identify factors affecting hearing aid adoption and use in adults with presbycusis	N=32 Three groups of older people with hearing loss in Northern Ireland were recruited: (a) regular hearing aid users (n =12), (b) irregular hearing aid users (n = 10), and (c) hearing aid nonowners (n = 10).	interviews & demographic questionnaire	Constructivist school (implied)
Gfeller et al. (2019)	Living with hearing loss: Experiencing music	Explore the perspectives of CI users on factors that support or undermine music experiences in everyday life.	N=40 PHL with cochlear implants	Semi-structured interviews & online questionnaire	Not stated
Glade (2017)	The impact of hearing loss on relationships and CPs	Understand the role of spouses for recipients of CI users who were post-lingually deafened as well as the recipients of cochlear implants in auditory rehabilitation	N=12 Six couples, PHL with cochlear implant - severe to profound hearing loss & their married spouse	Semi-structured interviews, intake questionnaire on impacts of hearing loss, observation notes, researcher's journal	Constructivist school (implied)
R. Hallam, P. Ashton, K. Sherbourne, and L. J. H. Gailey (2008)	The impact of hearing loss on relationships and CPs	Explore the impact of acquired profound hearing loss (APHL) on the relationship between the PHL and their normally h earing close family member, usually a partner, and identified the kinds of adjustment leading to maintenance or deterioration of the relationship	N=50 PHL with acquired profound hearing loss n = 25; communicati on partners: n=25	Semi-structured interviews	Pragmatist school (implied)

				Semi-structured	
Hallberg and BarreAudiology (Nottingham University Hospitals NHS Trust) (1993a)	The impact of hearing loss on relationships and CPs	Explore the perspective of spouses on their experiences of living close to a male with severe noise-induced hearing loss (NIHL)	N=10 All female CP- spouses of males with severe noise induced hearing loss (NIHL)	Thematised interviews	Pragmatist school (implied)
Hallberg & BarreAudiology (Nottingham University Hospitals NHS Trust), (1995)	Coping strategies for hearing loss	Identify the coping strategies in males for coping with noise induced hearing loss (NIHL)	N=53 PHL Men with NIHL	Semi-structured interviews	Glaserian school (implied)
Hallberg & Carlsson (1991)	Coping strategies for hearing loss	Identify the strategies individuals, develop for managing their hearing loss	N= 62 PHL Inductive Study- n=12 ; deductive study: =50	Semi-structured interviews	Glaserian school (implied)
Hallberg & Jansson (1996)	The impact of hearing loss on relationships and CPs	Understand the perspective of women with NIHL, their experiences of noise as a threat to health and their having to live with a hearing disability	N=10 All females with NIHL	Semi-structured interviews	Glaserian school (implied)
Hallberg, Pike, & Ringdah (2000)	Coping strategies for hearing loss	Explore the perspective and coping abilities of individuals with poslingual severe-profound hearing impairment (>70dB LH at the frequency of 1kHz in the better ear), in everyday life	N=17 Post-lingual severeprofound hearing impairment. Hearing impairment since early childhood and all had hearing aids	Semi-structured interviews	Glaserian school (implied)

Hallberg & Carlsson (1993)	Participation restrictions due to hearing loss	Identify the different situations that can lead PHL to feel disabled and experience participation restrictions in their daily lives.	N= 62 PHL Inductive Study- n=12 ; deductive study: =50	interviews	Pragmatist school (implied)
Hallberg & Ringdahl (2004)	Living with hearing loss: Implications on everyday life	Investigate the implications of living with a cochlear implant on people with hearing loss in their day to day lives and quality of life	N=17 PHL with cochlear implants	Open interviews & field notes	Glaserian school (implied)
Hughes (2001)	Identity and hearing loss	Explore the selfconcept of young PHL i.e., how they perceive themselves	N=9 PHL 1 mild to moderate, 1 moderate, 2 moderate to severe, 2 severe, 3 severe to moderate. 8 Hearing aid users. 8 congenital HL, 1 late adolescence	Semi-structured interviews	Glaserian school (implied)
Hughes, Hutchings & Rapport (2018)	Living with hearing loss: Social connectedness	Examine the perceptions of social connectedness and perceived listening effort in adult with cochlear implants	N=17 PHL: n=15 post-lingual sensorineural hearing loss CP n=2: Significant others	Three focus groups & participant observation	Pragmatist school (implied)

				Semi-structured	
Koerber Moodie & Jennings (2021)	Occupational impacts of hearing loss	To investigate how nurses with hearing challenges adapt their telephone performance and workplace wellbeing in response to an online communication strategies training program.	N= 12 PHL nurses All female and over the age of 35 with eight over the age of 51	ethnographic interviews on telephone at baseline, and at a threemonth follow up after course online communication training course.	Pragmatist school
LaplanteLe´vesque, Pichora-Fuller, & Jean-Pierre Gagne (2006)	Audiological counselling and rehabilitation	Investigate the impact of an internet-based audiological counselling (i.e. emails sent from and to audiologist) on a new hearing aid user on their hearing rehabilitation journey	N=3 Adult new hearing aid users with bilateral hearing loss	Interviews & email exchange between audiologist and participant	Constructivist school (stated)
Lindqvist & Lundälv (2012)	Living with hearing loss: Work and transport	Explore the lived experiences of PHL's Participation in work Life and access to public transport	N=7 participants with a hearing disability	Three focus groups	Pragmatist school (implied)
Martin (2010)	Accommodations for PHL: Education facilities, communication support services	Investigate the perspectives of Albertan postsecondary students who are d/Deaf or hard of hearing and have accessed communication support services as part of their postsecondary experience	N=9 PHL with selfdescribed HL: severe: n=2	Semi-structured interviews	Glaserian school (implied)

McRackan (2017)	Living with hearing loss: Quality of life	Develop a questionnaire that specifically measures the quality of life of cochlear implant users.	N=23 Cochlear implant users with bilateral severe to profound sensorineural hearing loss.	Three semistructured focus groups	Constructivist school (stated)
Ng , Phelan, Leonard & Galsterk, (2017)	Device adoption and usage: Cochlear implant	Identify the uses and influences of using smartphone-connected hearing aids and its impact on patients, clinicians, and patientclinician Interactions	N=19 Clinicians with experience using the connected hearing aid n=8 PHL n= 11	interview, purposive sampling of grey literature & triangulation	Not stated
Noonan, Gallor , Hensler-McGinnis, Fassinger, Wang, & Goodman, (2004)	Living with hearing loss: Establishing successful careers	Investigate how highly achieving women with physical and sensory disabilities manage to achieve and create successful careers.	N= 1 PHL (one participant with hearing loss, amongst 17 participants with other disabilities)	Semi-structured interviews	Constructivist school (stated)
Pryce, Hall, LaPlanteLevesque & Clark (2016)	Help-seeking behaviours for hearing loss	Examine decision making processes during help-seeking for adult hearing loss	N=27 PHL with presbycusis who do not require surgical management	Observation of patient/ audiologist encounters & focus group interviews	Constructivist school (stated)
Schoffstall et al., (2015)	Healthcare professionals' perspectives on hearing loss considerations	Identify how Vocational Rehabilitation Counsellors (VRC) work with both d/Deaf and hard of hearing consumers and their systemic environments to ensure that selfadvocacy development takes place	N=10 Vocational Rehabilitation Counsellors	Interviews	Pragmatist school (stated)

Shaw, Jennings, PoostForooshb, Hodginsa, & Kuchara, (2013)	Healthcare professionals' perspectives on hearing loss consideration	Explore the need for networking and community to promote knowledge sharing and use between occupational therapists, audiologists, educators, regulators, workers, and employers regarding hearing loss	N=10 Semiaudiologists: structured n=5; interviews occupational therapists: n=5	Semi-structured	Pragmatist school (stated)
Shaw , Tetlaffb, Jennings & Southalld, (2013)	Living with hearing loss: occupational impacts	Investigate the impact of living with hearing loss on a PHL experience of the workplace	N=7 PHL with hearing loss between mild to profound	Semi-structured interviews	Pragmatist school (stated)

Shpigelman, Gelkopf (2017)	Living with hearing loss: Safety during violence	Establish the impact of living with a disability, including hearing loss, on being exposed to politically violent events e.g., war	N=4 (out of 18 total sample with various other disabilities)	Three focus groups	Constructivist school (stated)
Svinndal, Jensen, & Rise (2018)	Living with hearing loss: occupational impacts	Investigate factors which facilitate or hinder participation at work, as described by PHL employees e.g., accommodation & leadership	N=21 PHL with long-term experience of hearing loss	Interviews	Pragmatist school (stated)
Vieira, Dupas, & CHAIri, (2018)	Device adoption and usage: Cochlear implant	Identify the impact and effects of adult cochlear implantation on PHL	N=16 PHL with severe to profound hearing loss using cochlear implants	Semi-structured interviews	Pragmatist School (stated)
Wallhagen (2010)	Living with hearing loss: Stigma	Examine the stigma of hearing loss from the perspectives of both people with hearing loss and communication partners	N=168 PHL= 91; CP=91 PHL who had limited HA usage or never worn them	Qualitative interviews	Not stated
Total included in SR		**39**			

Areas of Hearing Loss Investigated

Four main themes and accompanying subthemes were identified (Figure 3.4.). The most often explored theme was 'Living with Hearing loss' which accounted for the area of investigation of 17/39 studies. Its subthemes included**:** *The impact of hearing loss on relationships and CP*, investigating how hearing loss impacted the quality of relationships between a PHL and their significant other, (n=5), *Occupational impacts (n=3), Adaptation to life transitions (n=1); Implications on everyday life (n=1); Work and transport (n=1); Social connectedness (n=1); Quality of life (n=1); Establishing successful career (n=1); Experiencing music (n=1); Safety during violence (n=1); Stigma (n=1).* *'Audiological counselling and rehabilitation'* is the second most researched area identified, with 11/39 studies investigating within this topic. Subthemes including *Device adoption and usage (n=3)* which mainly looked at hearing aid and cochlear implant devices; *Decision-making of hearing device usage (n=2),* and *'Professional Perspectives'* as some studies focused on acquiring professional expertise regarding hearing loss considerations *(n=4), Accommodations for PHL, Education facilities & communication support services (n=1);* and *Accessing health services with hearing loss (n=1).* The area of 'Identity and hearing loss' was the third most frequently investigated theme with six of the 39 included studies, four studies investigated identity alone, whilst the others investigated the*: Meaning of hearing loss (n=1),* and *Participation restrictions due to hearing loss (n=1).* Finally, *'*Coping strategies for hearing loss' was the least explored theme, being investigated in 5/39 studies. Three coping studies investigating coping strategies were conducted

by Hallberg, the first identified researcher to apply grounded theory to investigate hearing loss in 1991.

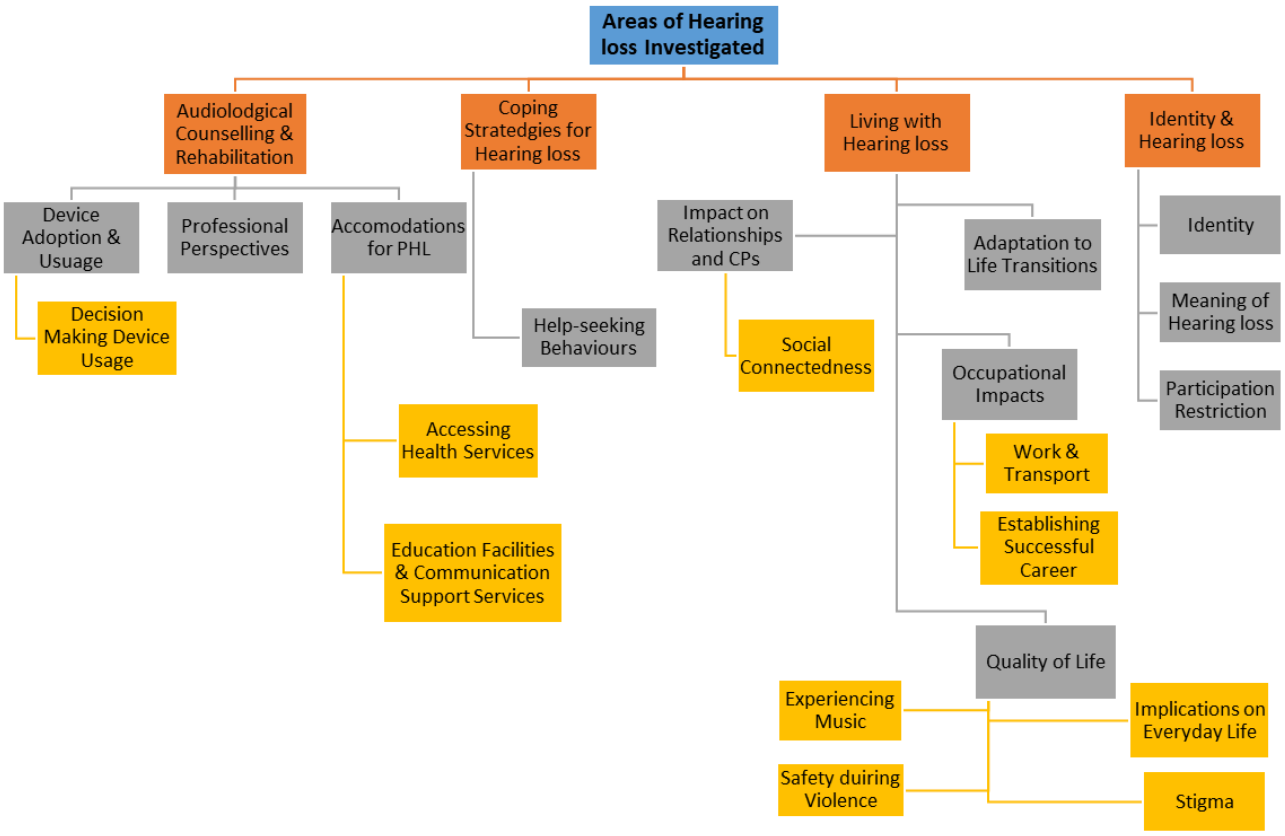


Figure 3.4. Areas of Hearing loss investigated with themes and subthemes

'*Patterns in help-seeking behaviours for hearing loss*' was a subtheme, being investigated twice (n=2). Overall grounded theory was applied to explore a diverse range of topics regarding the hearing loss experience, offering unprecedented insights into the experience of living with hearing loss, its impact on patients, their close family and friends, and the expert opinion of various healthcare practitioners.

3.6.1. Methodological Quality

Quality Appraisal Performance

Three overall sorting categories were created based on the level of application of grounded theory principles, as identified by the GUREGT tool. Please see appendix D. for the detailed methodological quality appraisal of each study

which contains how they scored against each of the 50 grounded theory considerations. A study was categorised as low quality (0-19/50) when the GUREGT score was significantly below 50 (the maximum score) and failed to meet the halfway point (25). Moderate quality (20-39/50) was given when scores approached and exceeded the half-way point of 25 but remained average. Finally, a high-quality rating (40+/50) was given to studies that scored significantly highly and neared full marks on all the criteria on the GUREGT tool. Ten studies (n=10) scored between 0-19 out of 50 using the GUREGT quality appraisal tool, as such these were classified as having low-quality as they reached less than half. Most studies had moderate-quality (n=25) scoring between 20-39/50. Only four studies scored 40+/50, achieving a high-quality classification (n=3). PhD theses that had been peer reviewed and met the inclusion criteria were included in the systematic search. The highest GUREGT score given was 47/50 for the study by Martin (2010). This thorough PhD thesis applied all central elements of grounded theory principles, and only lost three lost marks due to not justifying the use of quotes, and not identifying the basic social process before conducting focused coding. The second highest score was also given to a PhD thesis authored by Dorminy (2014) scoring 42/50 that investigated the hearing loss identity. Despite this, a crucial grounded theory process, namely theoretical sampling, was not applied in this study and therefore was deducted a total of 8 points. The third study with a high score of 40/50 was also a PhD thesis by Hughes (2001) which despite using theoretical sampling and evaluation criteria, did not state their philosophical stance nor identify clear study aims.

The lowest scoring paper was by McCracken (2017), scoring 9/50. Many grounded theory principles were not met, including not applying theoretical

sampling, constant comparative analysis and not discussing or evaluating a theory. Crucially, this study did not use grounded theory to create a new theory, and rather applied the methodology as a tool for analysis.

3.6.2. Evaluation of Resultant Grounded Theory

The study with the highest GUREGT score that was not a PhD- emanant thesis was by Hughes 2018, investigating social connectedness in cochlear implant users, receiving 36/50. It applied most principles of grounded theory comprehensively and was transparent on how it applied the methodology throughout the published paper, identifying all methodological and analytical processes undertaken. It applied most grounded theory principles such as theoretical sampling, making memos, correct analysis techniques, constant comparative analysis, and even applied reflexivity on the research team's background and expertise. The points lost were for not applying evaluative criteria to test the trustworthiness of the model developed. However, this is a common issue across most grounded theory studies included in this review as only seven out of the 39 studies discussed and applied evaluative criteria. Some that did identify the recommended evaluative criteria for their school, failed to use them to thoroughly critique their developed theory (n=4).

3.6.3. Overlooked Principles of Grounded Theory

The data extraction and quality appraisals were also qualitatively analysed using initial and focused coding. The following themes were detected as the most significant principles that impacted the overall perceived quality and score of grounded theory studies using the GUREGT tool. Four key principles of grounded theory were commonly overlooked and significantly impacted the overall quality of the methodological application. These are: the different

schools of grounded theory; the sample strategy, sample size; and the depth of grounded theory application.

The Different Schools of Grounded Theory

Only 15 studies out of 39 clearly stated which school of grounded theory they followed. This is problematic as the GUREGT tool is formed based on the three different grounded theory schools and has a tailored set of evaluative criteria for each school. To overcome this, we looked at the references and analysis techniques stated in the remaining studies to determine which school was likely to have been followed. This was successful for 20 studies which could be classified based on the methodological implications in the paper, however, four studies had no clear indication or reference to which grounded theory approach was applied. Overall, the schools of grounded theory followed differed across studies, with the most followed school being the Constructivist school (n=18) by Charmaz, followed by the Pragmatist school founded by Strauss and Corbin (n=14), and the Glaserian (classical) school had the least application (n=7).

Most studies lacked in detail regarding the grounded theory principles they followed, which is indicated in the difficulty of classifying each study's grounded theory approach. The principles most successfully applied were mainly the core grounded theory principles that are central in all schools such as constant comparative analysis, simultaneous data collection and analysis, and memoing. A general grounded theory approach was a common theme during analysis, and few studies engaged with the philosophical underpinnings and unique grounded theory tools of the specific grounded theory school it followed. Evidently, some confusion regarding the differences between schools as one study (Fitzpatrick & Schramm, 2006) stated that they were following the

principles of the constructivist school, whilst applying the principles of another school (the pragmatist school).

Sample Strategy

There were inconsistent applications of theoretical sampling across studies. Only 14 of the 39 studies applied theoretical sampling, which is a core grounded theory principle. The remaining studies applied either initial sampling, opportunity sampling, or purposive sampling only at one instance (n=25). Theoretical sampling is measured at three different stages on the GUREGT tool, therefore studies that did not apply it were impacted with a significantly decreased score.

Sample Size

Despite not being stated as a core grounded theory principle within the GUREGT tool, there is an agreed recommended sample size for grounded theory studies of at least 25 participants (Thomson, 2010). This is to ensure for insight from a good range of different perspectives and ensure the development of a comprehensive and rich theory. Only nine of the 39 studies had a sample of 25 participants or more, indicating that 30 studies did not meet this grounded theory recommendation without offering justifications for the number of participants recruited. Thus, studies with a sample size below 25 impairs the perceived comprehensiveness of the resultant theory which is crucial for the trustworthiness of any grounded theory developed.

3.6.4. Depth of Grounded theory Application

The main utilisation of grounded theory is for creating novel theories. Despite this, eight studies did not create a novel theory, and only used grounded theory within

its analysis for thematic generation rather than theory generation. Studies that produced a novel theory were the majority (n=31). Scoring low on the GUREGT tool, was consistent with the studies that did not fully apply the methodology to develop a novel theory. Uniquely, all studies applied grounded theory methodological techniques for the analysis of collected data (n=39). This highlights grounded theory as a particularly useful analytical tool that qualitative researchers utilise for its thorough and systematic qualities. However, eight studies applied grounded theory only as an analytical approach, rather than an overarching study methodology.

3.7. Discussion

This systematic review has shown an increase in the adoption of grounded theory in hearing loss research, tripling within the last 5 years. However, most of the studies in the review scored below 30/50 on the GUREGT scale showcasing that most studies failed to report all core items listed on the GUREGT appraisal tool. Thus, the main issues that hindered the quality of the grounded theory studies reviewed will be discussed, and recommendations to overcome these issues will be identified to guide future researchers using the methodology in
their field.

3.7.1. Fluidity of Grounded Theory

Studies reviewed offered insight into which areas of hearing loss were commonly investigated using grounded theory. A number of diverse topics were investigated including the impacts of living with hearing loss on family relationships (Hallam et al., 2008), occupational health (Svinndal, Jensen, & Rise, 2018), assistive devices (Fitzpatrick & Leblanc, 2010), and identity

formation (Adler, 2018; Knudsen, Laplante-Lévesque, et al., 2012). This confirms the proposed fluidity of the methodology praised by researchers as its central strength. Contemporary grounded theorists in varying health-related disciplines agree that the methodological flexibility offered by grounded theory has provided unprecedented insights in their disciplines. For example, grounded theory has been used to develop new policies regarding eating disorders (Faija, Tierney, Gooding, Peters, & Fox, 2017), give a voice to silenced victims (Nova, Rifat, Saha, Ahmed, & Guha, 2018; Otake, 2019), and shape the most common thematic analysis approach in qualitative research implemented across disciplines (Charmaz & Thornberg, 2020; V. Clarke & Braun, 2017). The range of topics investigated using grounded theory confirms the usefulness of the methodology for in-depth explorations of underlying social and psychological factors, as maintained by grounded theorists (Chun Tie, Birks, & Francis, 2019; Thornberg, Perhamus, & I. Charmaz, 2014b).

The significance of using of grounded theory specifically for hearing loss research has been in its enablement of identifying and forming the basis for new research areas within the field (Knudsen, Laplante-Levesque, et al., 2012; Meston & Ng, 2012). For example, the first development of a theory that identifies and explains the different PHL coping styles in dealing with their condition and how it impacts their auditory rehabilitation journey (Hallberg, 1999) which today acts as the basis of coping research within the field (Hricová, 2018; Warringa, Henke, Pronk, Kramer, & Stam, 2020). The findings from the current review and previous studies reinforce the evident usefulness of grounded theory as a qualitative methodology for applications within hearing loss research and all health-related fields.

3.7.2. A Theory Ungrounded

The quality of grounded theory was diminished by studies overlooking its core principles that are essential for establishing the “grounded” nature of the methodology. Evidently, many studies used grounded theory solely as an analytical tool rather than a comprehensive methodological approach. The misuse of grounded theory has commonly been identified as a detrimental factor reducing the quality of studies within grounded theory methodological reviews, including Engineering (Stol, Ralph, & Fitzgerald, 2016). A critical review of grounded theory applications in the field of Exercise Psychology identified that a substantial number of studies reviewed only used grounded theory as an analytical tool, leading the authors to hold a stern stance against this “cherry picking” approach (Hutchison et al., 2011). They explained that this inappropriate use of the methodology is “fundamentally flawed” as it fails to apply the basic principles of grounded theory and exploits the fluid nature of the methodology (Hutchison et al., 2011). This ultimately leads to lacking the consistency advocated by the founders of grounded theory (Charmaz, 2006; Thornberg et al., 2014b). Thus, selective application of grounded theory is discouraged within methodological recommendations in health research as the methodology was designed to inform all stages of a study: design, data collection, sampling, data analysis, and theory formation and evaluation (Berthelsen et al., 2018; Charmaz, 2006; Hutchison et al., 2011).

To ensure the grounded nature of a qualitative study, researchers are recommended to embrace the qualitative philosophies advocated by their chosen methodology. Ward and colleagues in 2015 identified the difficulties of researchers in health-related fields in transitioning from their scientific views

and objective research philosophy (positivism) to the more subjective and interpretive worldview that is central to qualitative research (interpretivism) (Ward, Hoare, & Gott, 2015). This systematic review emphasises the importance of training and educating researchers in qualitative philosophy, from formal training and qualitative modules to discussions with qualitative peers. Interpretive philosophical understandings must act as a background step before undertaking any research, as it's crucial for qualitative trustworthiness, rigour and will influence each stage of a research project.

Sampling beyond Initial Recruitment

Due to the exhaustive building process of a novel theory, the need for a more thorough technique for sampling was identified at the beginning of grounded theory's construction (Glaser & Strauss, 2017c). To ensure a study was not limited by the initial recruited sample, and that sampling can continue as an iterative process directing theory explorations during the simultaneous data collection and analysis process, the notion of theoretical sampling was formed (Morse & Clark, 2019). Theoretical sampling is a process by which focused explorations are made after identifying significant processes from the initial sample's data. These insights are explored and refined through recruiting more participants with specific characteristics or expanding on specific processes in subsequent interviews (Charmaz, 2006). Each grounded theory school stresses the importance of applying theoretical sampling, and the founders of the methodology identified it as a central process for increasing analytical power in any grounded theory (Glaser & Strauss, 2017c; Glaser et al., 1968). The current review found poor applications and reporting of theoretical sampling despite being a fundamental methodological dimension, indicating a common underestimation of the importance of the process in hearing loss research.

Another systematic review was conducted in 2016 that investigated the application of theoretical sampling in nursing studies using grounded theory methodology. The review identified that 50% of the studies applied purposive sampling only, disregarding the use theoretical sampling (McCrae & Purssell, 2016). Therefore, overlooking theoretical sampling as a central grounded theory process is a common and recurring issue impacting the quality of grounded theory studies in Health research. To overcome this McCrae and Purssell emphasised the need to establish systematic guidelines for studies to follow and ensure transparent reporting of their grounded theory process (McCrae & Purssell, 2016).

3.7.3. Applying the Grounded without the Theory

The main reason for using grounded theory methodology is to create a comprehensive novel theory (Charmaz & Thornberg, 2020; B. Glaser & Strauss, 2014; Thornberg et al., 2014b). Despite this, findings indicate that some studies only used grounded theory to analyse data and generate qualitative themes, which were not forged into a resultant theory. Nine out of the 39 studies didn't include a novel theory in their study despite using grounded theory (Table 2.3). This is reflective of limited methodological awareness during the study design stage, as the authors therefore may not have given much thought as to which methodology is the most suitable to adopt based on their study aims.

The results of this review showcase the increase in applying grounded theory as a methodology in the hearing loss research. Within grounded theory, data analysis is entirely dependent on the rigour of the data collection process. Quantitative researchers in the hearing loss research newly adopting grounded

theory may apply fewer data collection techniques, as not many methods rely on concrete data collection stages which directly impact the data quality, such as with grounded theory. To ensure adequate awareness of grounded theory process, knowledge or training of the methodology is needed before planning and implementing grounded theory studies.

Recent publications by Charmaz advocates for grounded theorists to develop *methodological self-consciousness* before the construction of a study's design (Charmaz, 2017). This process involves researchers employing reflexivity throughout their research process, beginning with establishing clear understandings of why grounded theory was specifically chosen as a methodology, which school is being followed, knowledge of the philosophical underpinnings and the primary grounded theory principles, and how these subsequently shape and influence the study design, data collection, analysis and theory formation (Charmaz, 2017; Charmaz & Thornberg, 2020). Methodological self-consciousness is a central process for ensuring a rigorous and transparent application of grounded theory methodology and enhancing the quality of grounded theory methodological applications (Charmaz & Thornberg, 2020). Therefore, the current review advocates the adoption of this practice throughout the research process as a tool to overcome low-quality grounded theory applications and enhance the trustworthiness of the resultant theories.

3.7.4. Quality Grounded Theory

The most frequently overlooked factor that decreased the score of studies included in the review was failing to not evaluate their formed grounded theory. Due to the comprehensive nature of grounded theory, the methodology has its own set criteria to evaluate the quality of its resultant theory which must

undergo validation before other studies begin to build on its theoretical assumptions (Berthelsen et al., 2018; Lazenbatt & Elliott, 2005). The evaluative criterion in grounded theory differs slightly based on the grounded theory school followed. A lack of understanding of the differences between grounded theory schools was found, with some studies following a different school's evaluative criteria to the one identified. The classical school firstly emphasises *credibility* of the researcher's expertise, and establishment of a credible theory, second is *applicability*, assessing how applicable the theory is to the field, similar to generalizability (Glaser et al., 1968). To judge methodological quality four criteria were identified: *fit*: the fittingness of theory as situated in the field, *modifiability*: how modifiable the theory is if new data arises, *workability*: how well the theory works to explain the phenomenon investigated, and *relevance*: how relevant the theory is for the population investigated (Smith & Biley, 1997). The Pragmatist school evaluates the quality of the data by considering empirical grounding of the theory and explanatory power, plausibility of the established theory and its potential value, and the adequacy of the research process (Corbin & Strauss, 1990). Finally, the Constructivist school criteria involves four dimensions: usefulness, credibility, originality, and resonance of the theory (Charmaz, 2006; Charmaz & Thornberg, 2020). As seen in this review, there has been a lack of consistency in applying these evaluative criteria to establish the credibility and trustworthiness in grounded theory studies (Lomborg & Kirkevold, 2003). Discarding the final recommended stage of grounded theory causes ambiguity regarding the applicability of the theory, and decreases the theory's usefulness (Charmaz & Thornberg, 2020; Lomborg & Kirkevold, 2003). It is not clear why an essential and final stage of the theory building process is commonly overlooked, researchers outline that the time

consuming and intensive nature of grounded theory process can result in less time availability to establish this further step (Miller, 1995). Although this may indeed be a practical limitation of the methodology, a lack of grounded theory training and awareness of fundamental principles is evident and the major factor for all methodological downfalls discussed thus far.

3.8. Advanced Grounded Theory Practise Needed

The many downfalls of grounded theory application in studies reviewed have shown limited grounded theory methodological depth and knowledge, with no study meeting all the grounded theory principles set. It has been agreed that to evaluate grounded theory studies, general guidelines are most suitable, considering the fluid nature of the methodology, and are essential for ensuring methodological quality (Charmaz & Thornberg, 2020). Thus, after the comprehensive identification of the main downfalls grounded theorists faced when conducting their studies, the following guideline consisting of 10 steps has been created to aid researchers across disciplines achieve methodological excellence by designing and establishing a quality grounded theory study (Table 2.4). Most quality appraisal tools such as GUREGT, are referred to and used after the start, or even completion, of conducting a grounded theory study. It is then used to assess, rather than inform the development of a grounded theory study, with opportunities for researchers to improve their application of grounded theory principles being limited or non-existent after their study has concluded. Therefore, the current systematic review aims to act as a guideline to aid researchers during in much earlier research stages, such as the conception period of their grounded theory study plan, and to help inform their grounded theory considerations throughout the process of conduiting process.

Table 3.2. Guideline showcasing 10 steps for grounded theory methodological excellence.

Guidelines for Grounded theory Applications for Researchers

1. *Choosing grounded theory*: Ensure that grounded theory is the most appropriate methodology to meet your research aims, and that a primary aim is to create a novel theory.
2. *Methodological self*-consciousness: engage in informed methodological decision making at every stage of your study.
3. *Philosophical Framework*: Outline the philosophical framework most appropriate for your research which will inform which grounded theory school to follow.
4. *Grounded theory school*: Choose which school to follow based on your research aims and overall philosophical stance.
5. *In-depth application of methodology:* Apply Grounded theory principles in all stages of study from design to analysis.
6. *Core grounded theory principles*: Ensure the application of all core grounded theory principles. These include theoretical sampling, constant comparative analysis, three-level theoretical coding, creating memos, simultaneous data collection & analysis, and reflexivity.
7. *Sample size*: Aim to recruit the recommended sample size for a grounded theory study, which is a minimum of 25 participants and continue recruitment until theoretical saturation is reached.
8. *Qualitative Rigour*: For developing a highly trustworthy and rigorous novel theory, engage in additional qualitative techniques that can be incorporated into grounded theory such as triangulation, member-checking, and crystallization.
9. *Evaluation of theory*: Use the relevant grounded theory evaluation criteria from your chosen school to evaluate your developed theory and establish its credibility and trustworthiness.
10. *Transparency in Publications*: Be transparent and explicit regarding the ways grounded theory was deployed across all stages in resultant publications for greater trustworthiness, even if mentions are brief due to word count limits. You can refer readers to supplementary files with more methodological information to overcome this.

3.8.1. Limitations

This systematic review used the GUREGT quality appraisal tool (Berthelsen et al., 2018) used to evaluate the applications of included studies. GUREGT was thorough in providing a comprehensive and detailed listing of all main grounded theory principles and methodological considerations. However, the authors believe that the overall appraisal of some studies may not be fully representative of methodological quality due to the 'all or none' nature of GUREGT, which could have overlooked some aspects of grounded theory for some studies. For example, some studies were comprehensive in their use of grounded theory methodology, whilst also applying other qualitative methodological techniques. The qualitative process followed by excellent studies in the review include triangulation, crystallization, member-checking, each of which enhance the quality of a qualitative study, and in turn the quality of an overall grounded theory study if incorporated. However, the GUREGT tool offered no space to consider these factors which would increase the quality of a qualitative study in general (Rolfe, 2006). Therefore, the utilisation of a qualitative critical appraisal tool in addition to the GUREGT tool may offer greater fairness for future grounded theory methodological reviews.

In an attempt to increase the fidelity of the tool, we introduced a scoring, through which each item was assessed and given a score between 0 – 2, with 0 implying the criteria for that item was not met, 1 implying the criteria was met to some extent, and 2 when the item criteria were satisfied. The GUREGT tool mainly consists of open questions, which made it difficult to concisely compare ratings. Therefore, this scoring system was created to standardise criteria across the four researchers conducting the critical appraisal. Despite

introducing this system, it did not address all issues as some questions within the GUREGT tool still required open interpretation. Despite citing evidence from studies to substantiate scores given and agreeing on all scores as a team, lacking specific detail on how to perform the appraisal for open-ended items created some lack of conciseness. Therefore, the current review recommends adding explicit detail in qualitative appraisal tools on how to assess subjective items and how to compare ratings, to aid in assessing grounding theory applications more consistently.

Another limitation was the inclusion of PhD theses within the systematic review. This may have skewed the critical appraisal finings as the top four scoring studies were either a PhD thesis (n=3) or a paper resultant from completing a PhD (n=1). The thoroughness and availability of large word counts for a thesis may account for the highest GUREGT scores as the comprehensive nature of a PhD thesis allow for more detail and transparency regarding the research process, as researchers are also assessed on this basis. Therefore, the quality appraisal results may not be representative, and grounded theory applications may be even lower than reported had these studies been excluded.

3.9. Insights and Applications from the Grounded Theory Systematic Review

The systematic review of grounded theory studies in hearing loss research provided several key insights that directly influenced the next stage of this study. While existing guidelines outline best practices for conducting grounded theory research, the review highlighted how grounded theory has been practically applied in studies on hearing loss, revealing both strengths and limitations in previous work.

The review found that while many studies claimed to use GT, there was wide variation in how grounded theory principles were applied. Some studies followed classic grounded theory approaches, while others incorporated constructivist or modified thematic approaches. This highlighted the importance of methodological transparency, which informed efforts to clearly document each stage of analysis in the next phase of this study.

The review identified inconsistent use of grounded theory -specific techniques such as constant comparative analysis, memoing, and theoretical sampling. Many studies engaged in coding but lacked detailed descriptions of how categories were developed into a final theoretical model. This emphasized the need to rigorously apply grounded theory methods in the next stage, ensuring that theoretical sampling and memoing were used systematically to refine emerging concepts.

Challenges in Theory Development: While some studies generated well-defined theories, others remained descriptive, failing to move beyond thematic analysis. This finding reinforced the need to ensure that the next phase of the study developed an explanatory framework rather than remaining at a purely descriptive level.

The review revealed that most existing grounded theory studies on hearing loss focused on social and psychological challenges, such as identity changes or communication difficulties, but did not explicitly explore mental wellbeing as a distinct concept. This gap confirmed the importance of developing a new theoretical framework to understand the relationship between hearing loss and mental wellbeing, rather than focusing solely on mental health conditions like depression or anxiety.

Overall, while grounded theory guidelines provide general principles for conducting a robust grounded theory study, the systematic review offered real world insights into how these principles have been applied in hearing loss research. Some of the key insights that could not have been gained from simply reading grounded theory guidelines include: 1) The specific challenges of using grounded theory in hearing loss research, such as difficulties in recruiting a diverse sample and applying theoretical sampling effectively 2) The practical limitations researchers have faced in fully implementing grounded theory techniques, such as limited use of memoing or difficulties in moving beyond descriptive findings 3) The lack of research explicitly focusing on mental wellbeing in PHL, highlighting the need for a new theoretical model tailored to this specific issue.

Based on these findings, the next stage of the study was designed to:

1) Ensure full integration of grounded theory techniques, including constant comparative analysis, memoing, and theoretical sampling, to construct a robust, explanatory theory. 2) Clearly document each stage of analysis, addressing the common issue of insufficient methodological transparency in previous studies. 3) Recruit participants using theoretical sampling, particularly targeting underrepresented groups such as those with sudden hearing loss and younger individuals, to develop a comprehensive theory of mental wellbeing in people with hearing loss..

By applying these insights, the next phase of the study aimed to strengthen the methodological rigor of grounded theory in hearing loss research while developing a new, empirically grounded theory that captures the complex relationship between hearing loss and mental wellbeing.

3.10. Conclusion

The findings of this systematic review offer several implications for the utilisation of grounded theory as a methodology in hearing loss research. The review found that applications of grounded theory have become increasingly adopted as a methodology in hearing loss research, showcasing the evident importance of ensuring grounded theory quality for the development of trustworthy novel theories across a range of topics within hearing loss research. The main issue that undermined the rigor of reviewed studies was not applying grounded theory to create a new theory, and many studies that did, lacked comprehensively applying principles that would enable their study to be classified as grounded. These overlooked methodological factors included not applying theoretical sampling, having a small sample size, and selective applications of grounded theory as an analytic tool. The quality of grounded theory applications was mostly hindered by a failure to apply evaluative criteria to assess the trustworthiness of theories developed. A significant lack of thorough methodological application was identified, and a substantial need for greater awareness of grounded theory principles is evident. It is recommended that grounded theorists follow grounded theory guidelines in future studies to overcome these methodological downfalls. The 10-step guideline has been established in light of the findings of this review, to aid grounded theorists across disciplines to achieve methodological awareness and apply grounded theory principles throughout their study from conception to dissemination. Future researcher using the 10-step guideline in this review could evaluate its usefulness in their studies, giving room for refinement. Grounded theory methodology’s usefulness has become evident in this review through its fluid

and thorough nature. When applied rigorously, the potential of achieving significant insights within the hearing loss research and health research highly likely.

4. CHAPTER 4: CHAI GROUNDED THEORY MODEL: DISENTANGLING THE RELATIONSHIP BETWEEN HEARING LOSS AND MENTAL WELLBEING

4.1. Introduction

This Chapter presents a qualitative grounded theory investigation aiming to identify which factors influence the relationship between hearing loss and PHL's mental wellbeing. The main purpose of this study was to explore experiences of hearing loss and mental wellbeing in detail to facilitate the formation of a grounded theory that thoroughly explains this relationship. How PHL perceive their mental wellbeing and define it was also explored and an overall definition of mental wellbeing specifically as defined by participants has been formed. To achieve this, semi-structured interviews with 33 individuals with various degrees of hearing loss, from different backgrounds, occupations, and age-groups were conducted. The data were analysed using inductive thematic analysis (Braun & Clarke, 2014), and grounded theory specific techniques such as constant comparative analysis and theoretical coding were also applied (Charmaz, 2006; Charmaz & Thornberg, 2020). The following sections provide a detailed overview of the different stages undertaken in the study, whilst specifying the findings acquired, identifying what mental wellbeing means to people with hearing loss, and explaining the resultant grounded theory.

4.2. Methods

4.2.1 Semi-structured Interviews

The main method used within this grounded theory study to collect data was semi-structured interviews. This method was selected as the most relevant for gaining insights into experiences of mental wellbeing in people with hearing loss. This is because semi-structured interviews are one of the most frequently used methods within qualitative research (Roulston & Choi, 2018), making it a well-established technique, with numerous guides and training available (D. Cohen & Crabtree, 2006). Particularly in grounded theory, semi-structured interviews are the most commonly used method to collect data (Henwood & Pidgeon, 2003). This is because they facilitate gaining insight into the experiences and opinions of individuals regarding a specific area (Wengraf, 2001). Unlike structured or unstructured interviews, semi-structured interviews provide the researcher with a balanced opportunity to both discuss the area of interest through pre-prepared interview questions, whilst also employing a valuable flexibility for the interviewees to expand on and discuss other aspects perceived relevant to the over-arching research question (Weiss, 1995). Therefore, I decided to apply the method of semi-structured interviews as it facilitates the exploratory process grounded theory follows, whilst also enabling the researcher to clarify ideas as interviews progress, thereby allowing theoretical sampling to take place (Charmaz, 2006).

Overall semi-structured interviews were a particularly beneficial method for the purposes of this study as it ensured that I could ask the relevant questions required to achieve insight into the topic at hand, whilst also providing the

interviewee the freedom to expand on unanticipated factors, adding greater insight into the topic (Bunne, 1999; Wengraf, 2001).

4.3. Ethics

4.3.1 Ethical Approval

Ethical approval for the study was obtained from the University of Nottingham, Faculty of Medicine and Health Sciences Ethics Committee (reference: 831807) on the 1st of August 2018 for recruiting participants from the NIHR Nottingham Biomedical Research Centre participant database.

Some individuals in the first group recruited from Audiology (Nottingham University Hospitals NHS Trust), explained that as they were retired, and older in age, accepting their hearing loss was easier. Therefore, for some individuals in this group the impact of mental wellbeing was less apparent. Thus, a need to recruit a greater variety in the sample was identified, subsequently HRA and HCRW Approval (IRAS 269773) were also applied for and obtained on the 23rd of January 2019.

4.3.2. Ethical Considerations

The topic investigated, mental wellbeing, can be regarded as a sensitive topic. Thus, this study took certain measures to ensure that no harm befell participants, both during and after participation. The appropriateness of interview questions was informed through piloting with a Public and Patient Involvement (PPI) member before the commencement of the study. Certain questions were rephrased, and feedback regarding the study participant forms were applied to make them more accessible to participants.

If participants became distressed during their participation in the interview, as the interviewer I offered to stop the interview recording, take a break, and asked the participant if they felt well enough to continue. Two participants out of the 33 displayed overt signs of feeling emotional. On these occasions I asked them whether they would like to take a break. Both participants said they wished to continue. One particularly remarked that the interview was their first opportunity to share their experiences relating to hearing loss and mental wellbeing, which normally would remain suppressed and unaddressed in the background of their everyday lives. A debrief form with the resources and services available for individuals who might be experiencing difficulties with their hearing and/ or mental wellbeing was also provided after each interview for participants to keep and access these services if needed (Appendix E).

To maintain confidentiality, each participant was provided with a pseudonym i.e., the individual's true names were removed and assigned a new fictional name. The pseudonyms given to each participant started with a different letter to their actual name and were phonetically dissimilar to ensure confidentiality. Spouses and children's name were also altered to avoid any possibility of identification. The pseudonyms and edits back to the source data were stored in a password protected file.

4.4. Participants: Recruitment, Sampling, and Demographic Information

Overall, 33 interviews were conducted in this study. All were adults above the age of 18 and had a diagnosed hearing loss. One interview was excluded as the participant did not have experiences to share regarding their hearing loss and discussed their travel experiences instead. Overall, 33 participants took part in included interviews. One group mainly consisted of participants with presbycusis (N=14) thus indicating most of

this group were older in age (>60). The following were the eligibility criteria which influenced the inclusion and exclusion conditions used to recruit the most appropriate participants:

The Inclusion criteria for all participants were:

1) Have hearing difficulties.

2) Fluent in English (as interviews will be conducted in English and there are no costs available for translators).

3) Age 18+ years old.

4) Able to give informed consent.

The Exclusion criteria for all participants were:

1) People with a self-reported cognitive decline or dementia.

2) People with hearing loss reporting a disabling level of Tinnitus (having intense symptoms that disrupt their everyday life), as this may have different implications for mental wellbeing than hearing loss alone.

4.4.1. Recruitment of participants

Twelve participants were recruited from the NIHR Nottingham Biomedical Research Centre database and were contacted by email or letter, according to the participants' preference. After responding and expressing interest to take part, potential participants were contacted and informed of all aspects pertaining to participation in the study. Out of the 12 recruited, seven were female, and five were male, with a mean age of 72 (Range = 54–88 yrs). Ten of the 12 individuals experienced mild to moderate hearing loss, whilst the remaining two had moderate to severe hearing loss.

The remaining participants (N=21) were recruited from the Nottingham Audiology Services (Audiology, Nottingham University Hospitals NHS Trust) located at Ropewalk

House. These are individuals attending either direct referral hearing assessment appointments, hearing aid repair assessments, or reassessment appointments between February 2019 and December 2019. Potential participants were sent a study information pack by post. This contained a study invitation letter, a participant information sheet, and a reply slip with a pre-paid addressed envelope for them to return. Those who returned reply slips saying they were willing to take part were then contacted by myself to schedule an appropriate time for the interview.

Information packs were sent via the Audiology (Nottingham University Hospitals NHS Trust) administrative assistance from the dedicated NIHR Clinical Research Network (CRN) audiologist, who had NHS clearance to access patient identifiable information. She arranged for the information packs to be sent, keeping all patient contact information confidential and undisclosed to myself and the research team. For the clinical sample, the PI delegated the duty of participant screening to the CRN audiologist, who was also a Nottingham University Hospitals NHS Trust employee. The CRN audiologist also had access to participant's demographic information, and could know their age, type of hearing loss, stage in Audiological services pathway, before sending out any invitations to take part.

4.4.2. Sampling procedures

First, initial **purposive sampling** was used to recruit an initial sample of individuals experiencing hearing difficulties (N=12/33). This sampling was specifically chosen as it involves targeting a specific sample of the population with certain characteristics. This sampling technique targeted people with hearing loss who were seeking help to deal with their hearing difficulties.

Purposive sampling significantly shaped the data by ensuring that the study captured a diverse range of experiences related to hearing loss and mental well-being. It was

employed to recruit participants who could provide rich, varied insights, rather than relying on a homogenous sample. Initially, purposive sampling was used to recruit individuals with different types and severities of hearing loss, ensuring a broad foundation of perspectives. As data collection progressed, theoretical sampling was implemented to fill emerging gaps, particularly by targeting those with sudden hearing loss (SHL) and younger individuals, as their experiences introduced distinct psychological and identity-related challenges.

Beyond hearing loss type and age, careful consideration was given to other factors that could influence the mental well-being of participants, such as social status, employment, and comorbidities. Efforts were made to include participants from varied occupational backgrounds, ranging from those in professional careers to those in manual labour or currently unemployed, to explore how workplace challenges and financial stability intersect with hearing loss-related distress. Additionally, participants with pre-existing mental health conditions and other health comorbidities were included, allowing for an examination of how multiple health challenges might compound psychological distress. Social factors, including levels of social support, relationship status, and family responsibilities, were also explored in interviews, revealing how external circumstances influenced coping mechanisms and well-being trajectories.

Table 4.1. Table summarising participant sampling and recruitment

Sampling Method	Number of participants	Type of ethical approval	Where recruitment took place

Initial Purposive Sampling	• N=12 • Mainly older PHL	• University of Nottingham School of Medicine Ethical approval (reference: 83-1807)	• Participants were People with Hearing Loss recruited from the Biomedical Research Centre database
Theoretical Sampling	• Total N=21 • Younger PHL (N=18) • Sudden Hearing loss (N=3)	• HRA and HCRW Approval (IRAS 269773)	• Participants recruited from Audiology Clinic (Nottingham University Hospitals NHS Trust)

Second, based on the themes emerging from the early interviews, **theoretical sampling** was successfully used to identify specific concepts and groups needed for further theory refinement. Participants were individuals with specific traits, knowledge or experiences identified through analysis to be integral to understanding the relationship between hearing loss and mental wellbeing. They were pursued to refine the theory being formed and provide the depth of knowledge required for the creation of a novel comprehensive theory.

Theoretical sampling, a central technique for grounded theory where relevant samples for answering the research questions are identified and targeted, was applied as most of the participants recruited (N=12/33) in the initial sampling phase were older PHL (67-90 yrs.). During interviews participants suggested that their experiences of hearing loss and mental wellbeing might have been different if they were younger. This was identified as a focus due to repetitive recommendations by the initial sample. Four participants suggested I recruit younger PHL for the purposes of this study to

investigate whether there was a difference in the level of impact of hearing loss on mental wellbeing for younger PHL compared to older PHL. These initial participants speculated that younger PHL, whom would not yet be retired, could face more pressuring dynamic experiences in situations such as pursuing a degree, career, and relationships.

Thus, theoretical sampling was used to recruit younger people with hearing loss (N= 18). This was done via collaborating with the Audiology (Nottingham University Hospitals NHS Trust) administrative assistance from the dedicated NIHR Clinical Research Network (CRN) audiologist. The CRN audiologist was able to prioritise the sending of study information packs to patients based upon demographic factors important to theoretical sampling (i.e., age).

Theoretical sampling was also used to specifically recruit people with sudden hearing loss (N=3). This is because one PHL recruited already had sudden hearing loss by chance indicated that their hearing loss had significantly impacted their mental wellbeing. Given that this participant described heightened psychological distress and difficulty coping, it became evident that sudden hearing loss was a missing element that needed further exploration to explain how specific characteristics relating to hearing can have a direct influence on mental wellbeing and cause distress. More PHL with sudden hearing loss were recruited through theoretical sampling as they seemed to represent a unique subgroup within the broader hearing loss population.

Therefore, more participants were recruited to explore this further, through the same process with the CRN audiologist, who identified patients with sudden hearing loss and invited them to participate in an interview.

4.4.2.1 The Role of Theoretical Sampling in Building the Grounded Theory

Theoretical sampling played a crucial role in shaping the development of the grounded theory by ensuring that data collection was responsive to emerging patterns and allowed for a comprehensive understanding of how hearing loss impacts mental well-being. Early interview findings highlighted that sudden hearing loss was associated with acute psychological distress; after applying constant comparative analysis and the impact of sudden hearing loss was compared to other types of hearing loss. Analysis of the sudden hearing loss interview found prompted the targeted recruitment of additional participants with sudden hearing loss. This decision was essential for refining the theoretical model, as it revealed that sudden-onset hearing loss uniquely disrupted identity stability, leading to heightened experiences of grief, anxiety, and social withdrawal. Without this additional sampling, the study may have underrepresented the severity of mental health challenges faced by individuals with sudden hearing loss.

Theoretical sampling was also used to recruit younger adults with hearing loss, specifically those in university, early career stages, or starting families. Early interviews suggested that hearing loss during these transitional life phases could introduce distinct psychological challenges, such as fears of career limitations, relationship difficulties, and struggles with self-identity. By incorporating younger participants into the sample, the grounded theory was expanded to capture how developmental stage and life context shape the mental health impact of hearing loss. These insights contributed to the refinement of key concepts, such as identity conflict, coping styles, and external support, by demonstrating how younger adults may experience unique stressors compared to older individuals, who may have had more time to adjust.

Through this iterative and responsive approach, theoretical sampling strengthened the credibility and depth of the emerging grounded theory. By purposefully selecting participants to fill conceptual gaps, the study ensured that the final model accounted for a broader range of experiences, providing a nuanced understanding of the intersection between hearing loss and mental well-being across different life stages and circumstances. By incorporating variation across multiple dimensions, the sampling strategy enhanced the robustness of the grounded theory. It ensured that the final model was not overly centred on a single type of hearing loss experience but instead reflected the complex, multifaceted ways in which hearing loss interacts with life stage, social environment, and pre-existing vulnerabilities. While purposive sampling provided an initial breadth of perspectives, theoretical sampling refined and deepened the explanatory power of the findings by focusing on key areas of psychological distress and identity adjustment.

4.4.3. Theoretical saturation

The sample size for this study was 33 participants, after reaching data saturation. This sample size has been described by the literature as being an adequate size for performing a thematic analysis (Malterud, Siersma, & Guassora, 2016; Marshall, Cardon, Poddar, & Fontenot, 2013) and appropriate for a qualitative study focusing on in-depth experiences (Marshall et al., 2013). Sample size guidelines for qualitative interviews are recommended in the literature to be between 20 to 30 individuals for a qualitative interview-based study (Creswell & Poth, 2017; 2018). As the current study has a sample size of 33, the recommended number is both met and exceeded.

As this study adopted a grounded theory methodology, it is important to meet the accepted sample size recognised by Grounded theory experts to ensure an appropriate sample size is established, providing strength to the trustworthiness of the exploratory

grounded theory. As established in Chapter 3, there is a recommended sample size for a grounded theory study that many studies fall below (Creswell & Poth, 2017; S. B. Thomson, 2010). Creswell, an established qualitative expert, recommends the sample size of 20 and 30 participants for grounded theory research (Creswell & Poth, 2017). This study meets the recommended sample sizes for a grounded theory study (N=25) (Thomson, 2010), by having 33 participants in total.

4.4.4. Participant Demographic Information

Study participants included 33 individuals (14 males; 19 females) with varying degrees of hearing loss. Eleven participants had a mild to moderate hearing loss (N=11), whilst most participants had a moderate to severe hearing loss (N=16). Four participants had a severe to profound hearing loss (N=4), and two participants that had a profound hearing loss (N=2). Measurements of hearing loss were obtained after each interview via a clinical audiometric test to measure the level of hearing loss, as administered by myself, using the pure tone audiometry obtained according to the British Society of Audiology (2017) recommended procedure (British Society of Audiology, 2011). Reasons for the onset of hearing loss also varied, some were born with a hearing deficit or partial deafness (N=5). Two participants suffered from Chronic Otitis Media with Effusion early on in life, that became a repetitive condition, whilst others suffered from an illness that led to hearing loss becoming a side effect (N=5).
Some participants acquired their hearing loss later in life due to noise exposure (N=2) or blunt force trauma that damaged their hearing system (N=2), and three had experienced sudden sensorineural hearing loss (N=3).

Participants were aged between 18 to 88 (mean= 55.8 years; SD= 21.02). Of all the participants, 30 had adopted an assistive device (hearing aid users: N=20; cochlear implant users: N=1), and three participants were awaiting to be fitted with a hearing aid

(N=3). Most participants reported using their assistive hearing device consistently in their daily lives (N=22), whilst others reported inconsistent usage of their device (N=8), with varying reasons such as forgetfulness, the device being difficult to operate, or the individual disliking being visually seen as a hearing aid user. Table 4.2 presents demographic characteristics of each of the included participants (N=33).

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Table 4.2. Participant characteristics

No.	Pseudonym	Age	Type of Hearing loss	Age of Onset	Level of Hearing loss	Hearing Aid/ Cochlear Implant	Device Usage	Occupation
1	**Mary**	71	Presbycusis	59	Mild to Moderate	HA	Inconsistent	Retired Police Trainer
2	**Leanne**	79	Presbycusis	72	Moderate to Severe	HA	Inconsistent	Retired Secretary
3	**Harriet**	56	Chronic Otitis Media with Effusion	7	Moderate to Severe	HA	Consistent	Project Manager
4	**Mark**	67	Presbycusis	59	Mild to Moderate	HA	Consistent	Retired Teacher
5	**Jenevieve**	83	Presbycusis	49	Moderate to Severe	HA	Consistent	Retired Secretary
6	**Rodger**	88	Presbycusis	68	Severe to Profound	HA	Consistent	Retired Management Consultant
7	**Tim**	79	Noise-Induced	40	Moderate to Severe	HA	Consistent	Retired Builder
8	**Patricia**	76	Presbycusis	61	Mild to Moderate	HA	Consistent	Retired School Caterer
9	**Dan**	72	Noise-Induced	63	Mild to Moderate	HA	Consistent	Retired Printing Company
10	**Lenny**	77	Acoustic neuroma	26	Moderate to Severe	HA	Inconsistent	Retired Builder's Merchant
11	**Carry**	66	Blunt force trauma	64	Moderate to Severe	HA	Consistent	Retired Company Employee

12	**Rachel**	56	Presbycusis	49	Moderate to Severe	HA	Inconsistent	Nurse
13	**Grace**	25	Alström Syndrome	4	Moderate to Severe	HA	Inconsistent	IT Specialist
14	**Willow**	40	One-sided deafness	1	Profound deafness in one ear	HA	Consistent	Audiologist
15	**Nelly**	63	Presbycusis	51	Mild to Moderate	HA	Consistent	Receptionist
16	**Hayley**	27	Congenital hearing loss	14	Moderate to Severe	HA	Inconsistent	Administrator
17	**Alex**	23	Noise Induced/ Blunt force trauma	14	Severe to Profound	HA	Inconsistent	University Student
18	**Sally**	22	Congenital hearing loss	3	Moderate to Severe	HA	Consistent	University Student
19	**Peter**	33	Congenital hearing loss	1	Moderate to Severe	HA	Consistent	Factory Employee
20	**Katherine**	35	Sudden Hearing loss, related to hydrocephalus	34	Mild to Moderate	Awaiting HA fitting	N/A	Tax Specialist
21	**Clare**	65	Sudden Hearing loss	65	Moderate to Severe	HA	Consistent	Retired Secretary
22	**Olivia**	18	Chronic Otitis Media with Effusion	2	Mild to Moderate	HA	Consistent	Student
23	**Xavier**	40	Meniere's disease; one sided deafness	4	Severe to Profound	Awaiting HA fitting	N/A	Freelancer

24	**Roy**	63	Throat cancer causing Chronic Otitis Media with Effusion	58	Moderate to Severe	HA	Consistent	Retired Machinery Builder
25	**Valerie**	60	Presbycusis	56	Mild to Moderate	Awaiting HA fitting	N/A	Retired HR employee
26	**Bobby**	62	Sudden hearing loss caused by Vestibular Labyrinthitis	26	Moderate to Severe	HA	Consistent	Store Employee
27	**Gerry**	47	Presbycusis	43	Moderate to Severe	HA	Consistent	Advanced Nurse Practitioner
28	**Elisa**	71	Presbycusis	70	Mild to Moderate	HA	Inconsistent	Retired Realtor
29	**Amelia**	24	Congenital deafness	1	Severe to Profound	HA	Consistent	Student and Nursery Nurse
30	**Lola**	71	Presbycusis	68	Mild to Moderate	HA	Consistent	Retired Landlord
31	**Bryan**	42	Presbycusis	39	Moderate to Severe	HA	Consistent	Town Planner
32	**Fiona**	85	Presbycusis	70	Mild to Moderate	HA	Consistent	Retired Police Secretary
33	**Mathew**	57	Measles	5	Profound Hearing loss	CI	Consistent	Accountant

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4.5. Procedure

4.5.1. Pilot interview

A pilot interview was conducted with one adult with hearing loss who was recruited from the Audiology (Nottingham University Hospitals NHS Trust). They provided feedback on my approach as an interviewer, the wording and structure of the interview guide, and the clarity of the questions formed. Based on the feedback provided from the pilot interviewee, the structure of the guide changed slightly with a more emotive question being placed towards the end of the interview rather than the middle, to give more time for a rapport to be built.

4.5.2. Semi-structured Interviews

Participants took part in a 1–2-hour interview, with me as the interviewer, in which they discussed their experiences of hearing loss, what mental wellbeing means to them, and whether (and if so, how) their mental wellbeing was impacted due to their hearing loss. Table 3.3. below provides example of questions in the semi-structured interview guide. The interviewing style I adopted was ‘Intensive Interviewing’ as established by Charmaz (Charmaz, 2014). Intensive interviewing involves a detailed, focused, and exploratory conversation with participants. It emphasises the goal of understanding phenomena based on the participant’s own experiences, perspectives, and constructed meanings (Charmaz, 2006, 2014, 2017). Principles of intensive interviewing applied during the conduct of the interviews includes delving deeply into the related experiences of participants, following up on unexpected elements that surfaced during the interview, and relying solely on open ended questions to allow for the empowerment and freedom of response in

participants (Charmaz, 2014). This interviewing style was chosen as it allows for in-depth explorations, especially for understanding novel phenomena. Within the interviews participants provided in-depth insights into how their experiences of mental wellbeing related to their hearing loss. The interview contained flexibility, with discussions emanating from both the interview protocol, and from topics the interviewee identifies as relevant. Participants were therefore free to discuss unexpected elements they saw relevant to this topic.

After the interview participants recruited from the BRC research database provided demographic information. A clinical audiometric test to measure the level of hearing loss was administered using the pure tone audiometry obtained according to the British Society of Audiology (2017) recommended procedure. The student researcher was trained on how to conduct PTA and bone conduction audiometry and supervised by a trained audiologist during audiological testing. However, for participants recruited from Audiology (Nottingham University Hospitals NHS Trust), PTA and type of hearing loss were extracted from their medical notes after consenting access to this information. If relevant, participants were asked how effective their hearing aids were.

The full procedure took an hour and 1-2 hours to complete.

Interviews took place in a quiet meeting room at the NIHR Nottingham BRC during office hours, at a time convenient for participants and of their choosing. Participants were reminded of the information on the consent form (confidentiality and anonymity, recording and analysis/ storage).

4.5.3. Interview Questions Guide

The interview questions were formed based on the study's aims, which involved contemplating what prodding questions could obtain open avenues for the participant to relate their experiences and opinions. Questions were also formed through reading the relevant extent literature and establishing the recommended phrasing of questions as outlined by the Constructivist School of Grounded Theory (Charmaz, 2006). The questions I formed were then sent to supervisors and after altering some terminologies, the final version of the interview guide was formed (Table 3.3.). To avoid constraining participant's responses and bias their opinions of metal wellbeing, they were asked to describe what mental wellbeing meant to them in a general sense.

Table 4.3. Interview Guide used in this study's semi-structured interviews.

Interview Guide
Example opening of interview: Thank you very much for being willing to take part in this study. As you already know, this interview will involve you talking about your experiences of wellbeing and hearing loss, and what wellbeing means to you as an individual. We can take a break at any time, so just let me know whenever you want one and I'll stop the recording. Also, if would like any tea or coffee just let me know and I'll be quick in getting you a cuppa.

Interview Guide Questions

- **Can you tell me a bit about your hearing loss?**

(Probing Questions (PQ): When did it first happen? when did you first notice it? What was going on in your life then? What was it like? What did you think then? How did you happen to get your hearing tested in the first place? Who if anyone influenced your actions? Tell me about how he/she/they influenced you).

- **Tell me how your hearing loss makes you feel?**

- **What sort of impact has that on your life?**

(PQ: Could you describe a typical day for you in dealing with your healing loss in different situations? Any impact on your social or personal relationships?)

- **In your opinion, what does mental wellbeing mean to you?**

(PQ: What factors in your everyday life impact your overall sense of wellbeing? Can you tell me what makes you feel happy, or sad? Has this changed since you've had a hearing loss?).

- **What does good mental wellbeing mean to you?**

- **What do you need for your mental wellbeing to be good?**

(PQ: Tell me about how hearing loss has impacted you in your everyday life? Are they any specific situations you encounter? What are the most memorable experiences you remember that have impacted you? What do you do to support it?)

- **How have you developed through these experiences as a person?**

As this was a semi-structured interview, the questions asked acted mainly as a topic guide, and flexibility was available for participants to discuss elements related to their experiences of hearing loss and mental wellbeing that were not anticipated or expanded their own accounts and explanations. This added to the exploratory process central to grounded theory, in which true depth and exploration was achieved within each semi-structured interview and with each participant.

4.6. Analysis of Data

Data analysis started during data collection, as recommended by the constructionist school (Charmaz, 2006). Between one interview and the next, the audio recorded interviews were transcribed and analysed. Traditional methods of coding were adopted by producing paper copies of the transcripts, and coding them by hand using pens, highlighters, and post-it notes.

4.6.1. Data Familiarisation

Before beginning the coding process, the first phase I underwent was refamiliarising myself with the data and becoming immersed with each transcript. I had conducted all interviews, and transcribed 10 out of the 33 interviews, the remaining interviews were transcribed by a research assistant within the team, and by a licensed transcriptionist approved by the University of Nottingham (N=14). Therefore, the process of refamiliarising myself with the data was a crucial process, during which I re-read each transcript and took note of situations, behaviours or concepts that stood out from each transcript. I began more detailed analysis after establishing full data immersion.

4.6.2. Inductive Thematic Analysis

Principles of inductive thematic analysis were applied during coding to identify the different processes associated with the experience of hearing loss and mental wellbeing, as established by Braun and Clarke (2017). To achieve inductive thematic analysis, data were analysed in an open-minded manner where codes were derived from the actual data, rather than applying a predetermined theory.

Braun and Clarke's thematic analysis was incorporated within the grounded theory approach to provide a structured yet flexible framework for identifying and interpreting patterns within the data. While grounded theory focuses on generating a theoretical framework through systematic coding and constant comparison, thematic analysis complements this by offering a clear, step-by step process for coding and theme development. The use of Braun and Clarke's approach ensured transparency in how themes were identified, refined, and reported, enhancing the rigor of the analysis. Additionally, thematic analysis facilitated a more detailed exploration of participant experiences before integrating findings into the broader grounded theory framework. This approach allowed for a balance between inductive theme generation and theoretical abstraction, ensuring that the findings remained rooted in the data while also contributing to a broader conceptual understanding. By integrating thematic analysis within the grounded theory methodology, the study maintained methodological consistency while leveraging the strengths of both approaches to enhance analytical depth and clarity.

To establish some initial consistency in the analysis of transcripts, two esteemed qualitative researchers reviewed the grounded theory analysis of the first two analysed interviews. Feedback was given on the level of depth of analysis, and the importance of analysing closely to the participant's words, especially in the beginning of the analysis process. This feedback was implemented in the subsequent stages of analyses. The analyst team (YA, NW, DC, DH, HH) had three further meetings to agree upon common understandings, definitions, and names of codes.

4.6.3. Grounded Theory Analysis

Grounded theory analysis techniques were carefully followed throughout the analysis process also. Following Charmaz's school of grounded theory, initial coding was used where codes are identified line by line, through actively naming the data and remaining lose to the participants' terminology. Secondly, focused coding was applied, where the most significant codes emerging across interviews are returned to and analytically reviewed to begin categorising the data. This continued until theoretical sampling was achieved., i.e., the same information, concepts and ideas were being repeated and the theory cannot be developed any further.

This grounded theory analysis began with the initial coding of data. This involved adding codes which captured meaningful and interesting data by reading the data intently, line by line, and actively naming the data with labels that stayed close to the participants' own words. The depth of this process can vary across qualitative analysts, as some can suffice with one all-encompassing label that captures the phenomena, however I have found my analysis pattern to be more detailed, as I would add multiple codes to capture the different dimensions of one extract of data.

Secondly, focused coding was applied, where the most significant codes emerging across interviews, as identified through the initial coding phase, were revisited, and analytically reviewed to begin building subthemes and categorising data in a more informative manner. These codes were then categorised into broader themes and subthemes, in relation to their role in expressing definitions of mental wellbeing to people with hearing loss and explaining how hearing loss can impact a PHL's mental wellbeing.

Memos of ideas were also written throughout and used as part of analysis in which the significant experiences, concepts and elements are highlighted, contemplated, and discussed. Memo-writing also allowed for the identification and expansion of ideas and is therefore an integral part of this study (Charmaz, 2008b).

The main findings and concepts emerging in subsequent stages were identified, characterised, and analysed. Analysis was completed for all transcripts, and the process of merging codes, and building subthemes, themes and categories underwent a process of crystallisation in which I took a step back from my immersion in the data, not revisiting or rereading any excerpt from the transcripts or memos, and instead underwent a process of reflection. I reflected on my learning and understandings so far from the data and tried to identify and note down what the main insights were so far. Undergoing this process aided me to critically review my perception of the evident analysis, and allowed me to begin to crystallise my understanding which was then revisited, reflected upon, and integrated into the ongoing analysis process.

4.7. Results:

The first section of the results will highlight understandings of mental wellbeing and how it was defined by participants with hearing loss. As discussed in Chapter 1, an outcome of the literature review was a lack of consistency in how mental wellbeing is defined as a concept. Also as highlighted in Chapter 2, the constructivist grounded theory school urges researchers to view phenomena from the vantage point of the participants and avoid implementing the researchers' preconceived understanding. Thus, understanding how PHL defined mental wellbeing was important for establishing the subsequent

connections between hearing loss and mental wellbeing. This process was shaped by the processes of conducting simultaneous data collection and analysis, initial and focused coding, memoing, and constant comparative analysis. Five main categories that characterise PHL's perceptions of their own mental wellbeing are outlined below. The results presented are based on the final analysis of the data after reaching theoretical saturation, and the focused codes with the highest analytical value will be identified for each category.

The primary themes were built based on the most relevant and persistent focused codes which were constructed from several initial codes. The five themes outlined were perceived as the most meaningful constructs that aligned together in explaining and representing what mental wellbeing meant to people with hearing loss. Each theme and subtheme are discussed below in more detail whilst being related to their role in explaining the PHL's understanding of mental wellbeing and the impacts of hearing loss where relevant.

4.7.1. Definitions of Mental Wellbeing

Participants were asked to define what mental wellbeing meant to them. This was done without mentioning hearing loss, to avoid biasing the participants in the phrasing of their definitions and relating it to hearing loss. This was in following grounded theory protocol, but also to see whether the topic of hearing loss came up organically with participants when discussing what impacts their mental wellbeing, rather than predisposing them to this association. Across the 33 interviews, definitions of mental wellbeing varied, and were personally constructed and relevant on each individualistic basis, as what mental wellbeing meant to participants seemed to relate to their own specific life circumstances, traumas, challenges they have faced and may continue to be face in their daily

lives.

The themes and subthemes outlined are based on the final analysis of the data that provides insights into the perceptions of PHL into what mental wellbeing means to them. Four main themes resulted. These four main themes were built from the categories and focused codes that pertained the highest perceived analytical value in reflecting what mental wellbeing meant to people with hearing loss: Wellbeing Equilibrium, Capability, Identity Maintenance and Managing Everyday Life.

4.7.1.1. Theme: Wellbeing Equilibrium

Wellbeing Equilibrium refers to the state in which an individual feels emotional balance, i.e., the negative effects (emotions) experienced, that emanated from difficulties faced in everyday life, which could have been a harmful and overwhelming force are counteracted by positive thoughts, emotional reassurance, and a sense of calmness, creating a balanced emotional and cognitive state of affective being. Life difficulties mentioned when discussing and explaining the fluctuation of mental wellbeing included divorce, the loss of a loved one, loss of employment, working in a stressful/uneasy occupational environment, experiencing health issues, and crucially, the loss of hearing.

As reinforced by multiple participants, this state of internal emotional balance lead to the maintenance of sustainable mental wellbeing that aided with emotional stability in everyday life. Mary, a participant with mild to moderate hearing loss, expressed the meaning of mental wellbeing by referring to it as experiencing the difficult and stable instances of life equally. She stated:

"Accepting, life, its light and shade, we all have traumas in our life (pause)… I'd like to use the word equilibrium." (Mary, 71).

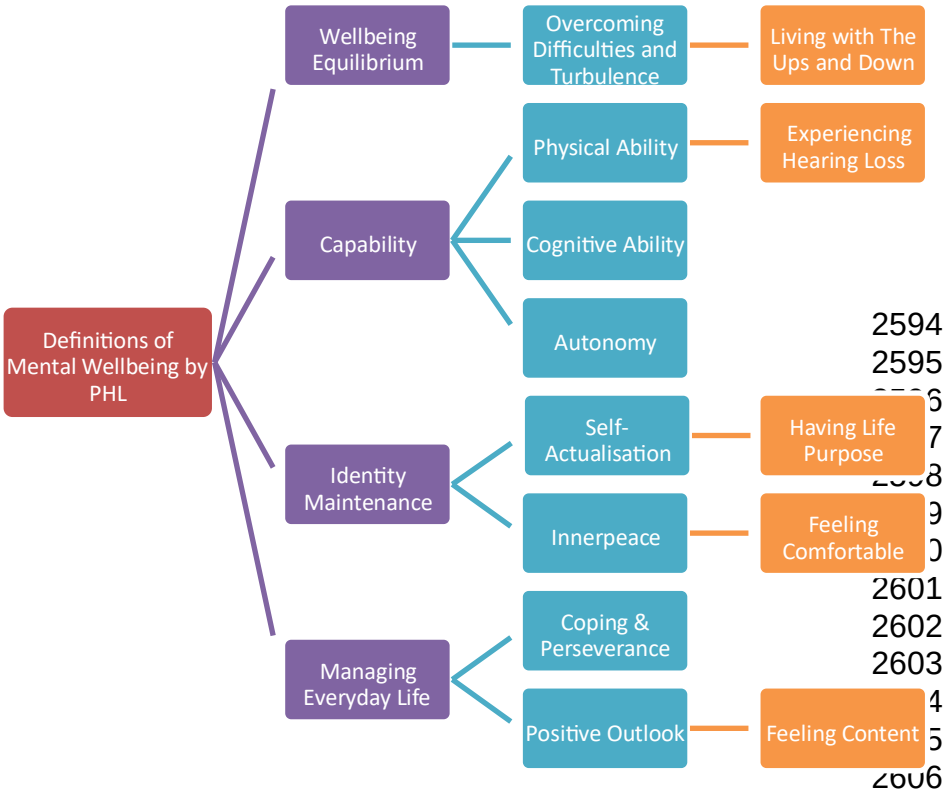


Figure 4.1. Definitions of Mental Wellbeing for PHL Themes and Subthemes and Focused codes. The main themes (purple), subthemes (blue), and focused codes (orange) expressed the highest value constructs that explained what mental wellbeing meant to people with hearing loss.

Mary also highlighted the process of acceptance in explaining what defined mental wellbeing, as she indicated having unrealistic expectations of life, such as it being full mainly of positive experiences (light), may be an added factor that could lower mental wellbeing. Mary's comment suggest she believes that one must accept life in its full, true form, the 'shade' i.e., difficult, and dark times that any individual experiences numerously in their lifetime, in addition to the 'light'.

A related focused code identified is 'The Ups and Downs', which refers to the process of experiencing the difficulties and highlights of life interchangeably, which aids in creating the sense of balance within the *Wellbeing Equilibrium*. The conceptualisation of mental wellbeing as being an equilibrium process balancing 'ups' and 'downs', was also expressed by 23-year-old student, Alex, who likened mental wellbeing to a heartbeat pulse, saying:

"You know there is that line I think mental wellbeing is a line, it's like a heart pulse on that monitor sometimes it goes up and down sometimes it fluctuates but you have still got to get back into that line, straighten that line back up. I'd say ok obviously the flat line, is death the ups are good, and the downs are lows that's how I see it in my mind. It will always get tested mental wellbeing, won't it? Even if you are really good and got everything in life, Robin Williams, it doesn't matter if you're male or female." (Alex, 23)

A similar supporting conceptualisation of mental wellbeing being related to an inner emotional balance was expressed by Bryan:

"I feel like everything's erm … not necessarily brilliant or good, but everything can be seen in perspective and that I'm not necessarily overly focusing on one issue or another issue and that I'm able to see through all of the noise that you get in life and realise what's good, what's bad, and balance, you know, the various pressures on me." (Bryan, 42)

Bryan identified that his own process of emotional equilibrium revolves around balancing life pressures, and the emotional and cognitive stressors that are associated with these pressures, which could be factors for tipping the Wellbeing scale down. Interestingly, he identified cognitive clarity as a criterion for emotional balance, in which having a holistic perspective and outlook on life events, could aid recognising the interchangeable dynamic of life, with its 'ups and downs', and that no state, even the difficult ones, are constant, as the balance will cause it to shift once again.

Wellbeing Equilibrium was also associated with being in a middle position, between the ups and downs of life and experiencing them both equally. Willow expressed:

"It's how you, act every day. Normality is the absence of abnormality. most of us are kind of in the middle, which is where your kind of should be. so, I would say I've got like massive self-confidence which helps." (Willow, 40)

The second subtheme 'Overcoming Difficulties and Turbulence' was identified as providing the detail into how emotional balance was regained within the *Wellbeing Equilibrium*, thus leading to the overall sense of mental wellbeing for the participant. Evidently, participants expressed that everyday life contains very difficult circumstances that can alter this balance, and during this process, mental wellbeing can become lowered. This is well expressed in a quote by Lenny.

"I think it's being able to cope. I think sometimes dealing with mental health, they don't tell you, you have got to cope, be hard on yourself, force yourself, you've just got to sit down analyse yourself and look in that mirror and say what you can see to pick the bones out, and try to overcome it, to get your life back to normal. Life is full of ups and down and being ruthless with yourself is sometime the only way out of it, or at least to force yourself to try. When my wife passed away (pause)… it was hard to force myself to anything, I was just swept away. But I had to think of my daughters, I needed to try to be at least functional again for them. I don't want to rely on tablets, because I'll have a tablet you know and that don't do me any good, so I'll have a stronger tablet and sometimes I'd be going round like a zombie then like I'm on crack or something like that do you know what I mean? So, I had to rely on myself." (Lenny, 77)

Lenny expressed the importance of taking action towards improving mental wellbeing and overcoming difficulties in life. The strength and motivation needed to achieve this Wellbeing Equilibrium thus seemed to be related to an individual's self-motivation and self-efficacy for overcoming the situation.

4.7.1.2. Theme 2: Capability

When participants were asked what defined their mental wellbeing, a repeated factor mentioned was the concept of capability. Capability as referred to by participants meant their personal ability to perform certain tasks, on a physical, cognitive, occupational, personal, and/or social level. PHL identified that having the power to perform these tasks aided their feelings of mental wellbeing, therefore situating it as a central construct influencing their perceived autonomy and control over their lives, and consequently their level of mental wellbeing.

Below is a quote from Mary expressing what mental wellbeing meant to her:

"Capability. Being capable and independent (pause)… I've always thought that I don't want to be a burden on anybody. I want my independence. And to lose my mental faculties, would just be awful." (Mary, 71).

Mary's definition of mental wellbeing highlighted the importance of having autonomy and independence over one's life. Feeling in control of one's actions was deeply emphasised, particularly being autonomous enough for not needing to rely on others to achieve one's basic needs. She emphasised the importance of having functional cognitive abilities, which she feared to experience losing in the future. A quote by Leanne, 79, also indicates that mental wellbeing is related to abilities, and the enablement associated with them, that a sense of loss can be experienced if abilities are negatively impacted:

"How your mental wellbeing affects your life. Most importantly, does its absence stop you from doing anything? If it's there, does it enable you to do anything?" (Leanne, 79)

Leanne's comment expresses that the construct of mental wellbeing itself can either enable you to complete certain life activities, and its absence prevents you from continuing to complete some life activities as normal. This implicates the construct of mental wellbeing itself as a confounding factor on an individual's sense of capability in life.

Importantly, the concept of capability also related to physical abilities that participants prioritised for having and maintaining mental wellbeing. Hearing loss

was identified as a physical disability with impacts and restrictions that negatively affected PHL's mental wellbeing, as mentioned in their direct definitions of what mental wellbeing meant to them. Grace, a young PHL, expressed how hearing loss interfered with her mental wellbeing, bringing it down. She expressed:

"It's a tool. Having good mental wellbeing, you know, I take things in stride, but I find my hearing (loss) really interferes with it and I would like to have what I had before. I, I don't feel at ease with myself anymore. I'm alright at home, but outside, with my friends, I'm missing what they've said, all the things they've said. It's that frustration level. Complete drain of complete energy." (Grace, 25)

Evidently, Grace's hearing difficulties were central to her experiences of mental wellbeing. Her hearing loss was also associated with an impaired social ability, as she explained she was less able to socially engage and interact within her social groups, as she missed some spoken speech in conversations. She also identified negative emotions emanating from her hearing loss such as frustration and losing her sense of self. The number of life losses associated with her hearing loss had ultimately lowered her sense of mental wellbeing and continued to do so.

Peter, 33, also expressed experiencing distress due to his hearing loss, with similar frustrating and angry emotions being experienced, after he was asked what mental wellbeing meant to him:

"If you are happy mentally if you are content. Obviously when my hearing goes that's just instant, I've never felt so sad about something or even angry at the minute this is blocked up it's not as blocked as it usually is but it's got me to the point where I want to punch something because I could be having a great day then it goes pop. That is probably the main thing, so I'm quite happy I try to be apart from like I say when the hearing goes and that's instant. So being not necessarily happy but content with where you are at." (Peter, 33)

Peter expressed a deep sense of sadness associated with hearing loss, outlining it was his largest source of unhappiness he had experienced so far in his life. His loss of hearing was reoccurring, due to it being conductive hearing loss, and the sudden and repetitive loss of his hearing ability led to negative impacts on his mental wellbeing. This reflects the magnitude of which hearing loss can impact the mental wellbeing of PHL.

Whilst reflecting on the meaning of mental wellbeing, a number of PHL related the concept to having sound cognitive abilities, this involved memory and recollection abilities, being quick in speech and responding to others, being able to maintain substantial focus, and having mental energy. Dan explained that his mental wellbeing was related to his cognitive sharpness and expressed fears regarding cognitive issues he had been facing:

"I'm getting older. So, I am losing, my memory is getting worse. And I can think of something, and within, and it might be a few seconds, particularly minutes, and I've forgotten what it is. And that is annoying as well, because I never used to. And forgetfulness is part of it. (And all of it), I know it is. It definitely is part of

it, yeah. So, whether that's old age or whatever, I don't know. Or whether it's because you're concentrating so much on hearing that, whereas, before, you never even thought about hearing because you heard it, it's like seeing, isn't it? You don't concentrate on anything like that. So, you were then, your mind was then concentrating on other things. So it could be, it's, it might be that I don't know. (Dan, 72)"

Like Dan, most participants often associated their hearing loss with their cognitive abilities, such as not being as 'quick' as they used to be, and processing speech and information was more difficult due to the delay caused by hearing loss. Thus, the most common capability associated with mental wellbeing is also a side effect of living with hearing loss, showing the secondhand impacts hearing loss had on PHL's perceptions of mental wellbeing. Bryan also maintained this cognitive related outlook, linking mental wellbeing to the efficiency of cognitive functions:

"I suppose it means that feeling like, cognitively, everything's working normally" (Bryan, 42).

Mary had also added her fear of losing her mental abilities during her definition of mental wellbeing:

"And to lose my mental faculties, would just be awful." (Mary, 71).

Interestingly, one factor that was consistently outlined in all interviews was also the ability of participate in everyday life activities. As Dan summarises:

"If you slow down and stop, and you don't go out to do the gardening, and you don't go out with the lads to play golf, I think you can get into a rut. I think you have to keep going. You need to do something. That's what it is, just keep going. Once you stop, I think its downhill from there." (Dan, 21)

The importance of being active, and continuing to participate in one's daily activities, especially those that an individual enjoys, is highlighted to be essential for experiencing mental wellbeing. Not engaging in activities either domestically or externally, is suggested to lead to feelings of low mental wellbeing and being susceptible to feeling down.

Overall, the physical and cognitive abilities of a PHL were greatly related to their perception of mental wellbeing, which linked to the social, emotional, and cognitive consequences they experienced in daily life due to their hearing loss.

4.7.1.3. Theme 3: Identity Maintenance

A variable that many participants related to their perceptions of mental wellbeing was being able to maintain their self-identity. An individual's identity typically was altered or impacted in some way for PHL. For those who acquired their hearing loss, identity had subsequently changed from being a normal hearing individual to an individual with a hearing impairment. Many participants expressed that their mental wellbeing was related to if they managed to maintain their own old identity, i.e., who they were before their hearing loss, with the same personality and capabilities, continuing to do the activities, behaviours, and traits that were central to their overall self-concept. Rachel expressed that her mental wellbeing

centred around how she viewed herself, and needing to come to terms with her identity changing due to her hearing loss, and that she couldn't be the 'old Rachel' anymore:

"For me it would be about being happy and feeling good about yourself and feeling on an equal with people in all situations which I think my hearing (loss) means that I'm not. And just being you because I feel sometimes, I am not the old Rachel, this Rachel is not the same as the old Rachel because of the hearing (loss) things we have talked about. So, accepting that." (Rachel, 56)

Rachel's statement also indicates a struggle she experienced to accept that her old self may not return, and that her identity had changed with restrictions and unwanted traits, perhaps forever. For Rachel this process of acceptance was an important variable for facilitating her mental wellbeing.

Similarly, the youngest participant in this study, Olivia, whilst defining mental wellbeing, expressed how she viewed herself and identity greatly influenced her mental wellbeing, and that her hearing loss, and wearing a hearing aid had made her view herself more negatively:

"I know what mental health is, it affects me massively, it has for a very long time. Mental wellbeing is about keeping yourself well is something that I would say I haven't got down yet, I'm working on it. I am going to the doctors to help myself at the moment with my mental wellbeing because it is overwhelming now. I wouldn't say the hearing loss is the main factor of the mental health however it definitely contributes to it, some days when you are feeling especially low about

yourself, you know you are looking in the mirror and you just can't see anything good about yourself oh great and I've got this grey thing in my ear that just makes nothing work sometimes and it makes you feel. You have those days when you are feeling sorry for yourself like why I can't have something that works for me, for God's sake?! Why can't there be an instant fix?! and most days you are aware there is no instant fix there is always that. I think it is important that society as a whole take it more seriously. Because a lot of adults just don't see it, even my parents occasionally will say to me oh you just need to brush it under the carpet come on pick yourself up, when there are days when I literally can't get out of bed because I just feel so heavy, I'm just like, I can't I'm so exhausted, so it takes a lot to explain slash work on your mental wellbeing."

(Olivia, 18)

Evidently, maintaining a positive self-perception was linked to how she viewed herself and her hearing loss. Interestingly she outlined that she was more likely to view herself and her hearing loss identity as negative, in instances where her mental wellbeing was already low, and this fed into negative perceptions related to her appearance, including her grey hearing aid. This indicated again the fluctuating nature of mental wellbeing, and that contributing to its shaping are a culmination of inter-related factors.

A quote from Mark explaining what mental wellbeing meant to him also identifies being comfortable with one's identity as central for this to occur: *"I suppose it's about. Being comfortable with who you are and (pause) being comfortable with your circumstances I suppose. I think that it's a measure of I suppose general contentment." (Mark, 67)*

Some participants struggled with being their true self which they related to what mental wellbeing meant to them, which in Hayley's case, was revealing her true self, being comfortable with her identity, and embracing being vulnerable. She described mental wellbeing as:

"*I present myself with a mask sometimes because I'm afraid of people. I'm afraid of what they'll say or think or see me as less than them. But it's fake, a fake Hayley. Mental wellbeing for me is being able to take that mask off, put it down. Inside is a person going, okay, this is who I am, what I'm actually going through. Sometimes I'm struggling, and that's okay, because so is everybody else" (Hayley, 27)*

Rodger, another PHL also expressed the same phenomena when explaining his definition of mental wellbeing.

"Being comfortable in your own skin." (Rodger, 88)

This sentiment was also reinforced by Xavier, 40, who defined mental wellbeing as one's ability to be their true self and maintain their personal identity.

"It's, having the ability to go about everyday life without worrying too much. And being able to be yourself without, over worrying or being anxious. The anxiety is awful. If you don't have to worry, it definitely helps. Being able to supress it. I'm saying mental health could be like, if your depressed today you got like, bit run down but in a couple of day you feel alright. Uhm, almost like having a cold or

something. Mental wellbeing probably more long term. uhm, and, having sort of confidence in yourself and belief in yourself. Uhm, yeah." (Xavier, 40).

Interestingly, within Xavier's definition, he distinguished between his perceptions of what differentiates mental wellbeing from mental health, suggesting that mental wellbeing was a more long-term process that is cared for and reflected upon more consistently, than mental health which can relate to more detailed disorders.

A subtheme associated with the theme *Identity Maintenance* was the importance of 'Self-actualisation' for people with hearing loss. The subtheme self-actualisation is defined as an individual's sense of fulfilment in life. When defining what mental wellbeing meant to them, several PHL expressed it was the ability to accomplish their set goals in life and feeling a sense of purpose in their daily lives. Alex detailed:

"So mental wellbeing to me is feeling you have a purpose you feel like you are achieving that purpose feel like you are not stagnant you feel like you are going somewhere feeling safe feeling healthy, feeling loved… purpose and to be achieving that purpose to be on that line" (Alex, 23)

Alex's definition of mental wellbeing indicates that feeling unproductive and purposeless in everyday life could lead to feelings of being lost, and this state of aimlessness could lead to feeling low. Working towards identified life purposes provided him with feelings of hope, purpose, and meaning in life, thereby creating a state of mental wellbeing.

Roy also expresses the importance of purpose in life:

"To be useful again. After stopping work, you need something to put your mind into it, otherwise you sit here and (…). You've got to think of number one, yourself." (Roy, 63).

Roy's comment also indicates that working towards a set goal in life aided in keeping his mind positively occupied and prevented him from unhelpful thought processes such as rumination, i.e., revisiting negative thoughts and experiences that could reinstate negative emotions and lead to low mental wellbeing. Thus, keeping active with life purposes aided in escaping negative mental thoughts, and maintain mental wellbeing.

Valerie also references the importance of purposes in life when defining mental wellbeing.

"And I think that commits very much to having a purpose in life, isn't it? Working towards a purpose and getting something out of it for yourself. (Valerie, 60).

Gerry also expressed his mental wellbeing was embodied by being able to do his job well, and being close to his loved ones:

"At this moment is probably to be able to do my job and do it as well as I can and have people around me that I care about at home and at work
My passion for my job and being able to do that to the best of my ability and being close to people who I love and have a good time with." (Gerry, 47)

Overall, being able to achieve the state of self-actualisation in life, from actions such as working towards set life purposes, were instrumental for some PHL in expressing what the state of mental wellbeing meant to them. Self-actualisation was also aided in the identity maintenance of PHL, as persistently working towards goals or completing activities they deemed as useful, created positive views, reinforcing their preferred sense of self.

4.7.1.3. Theme 4: Managing Everyday Life

The final theme identified relating to how people with hearing loss defined their mental wellbeing was *Managing Everyday Life*. This theme refers to the act of an individual being able to manage the difficulties and stressors of everyday life and persevere through them. Sally described this process in detail when identifying what the definition of mental wellbeing was to her:

"Mental wellbeing is for me, it's not the absence of mental illness, because for some people that's never going to be a thing. I had depressive periods since I was about 13, it goes 2 years I'm fine, 2 years I'm not, that's my normal. Mental wellbeing, I would say, personally, is probably the ability to deal with that, and act on it, go "ok I've got it", it might be a terrible day, you know what I mean, but it's being able to manage it. The management of your mental health is how I would define it. Everything else is falling apart, I might as well be open. but I get a lot of people going, "you know that's really encouraging" and I think, the best part of being mentally well is being able to acknowledge that in yourself and knowing that there's other people around you which have the same issues. And not being by yourself." (Sally, 22)

In Sally's definition she also referred to mental wellbeing as the management of mental health, indicating firstly that mental health and mental wellbeing are related constructs, and secondly, that she views mental wellbeing as the tool for managing her mental health.

Feeling content and a sense of comfort with one's life situation, was also related PHL definitions of mental wellbeing and approach to the *managing everyday life*, i.e., exerting resilience regardless of one's personal circumstances was also identified as a significant factor to feel mentally well. Rodger's definition was:

> *"Life's about adapting, isn't it? Well, life is about two things: enjoying what you are doing and adapting to the things you can't avoid." (Rodger, 88)*

Katherine and Fiona also express the importance of feeling content for managing everyday life and thus experiencing mental wellbeing:

> *"Being not necessarily happy but content where you are at." (Katherine, 35)*

> *"Well, I think it's daily life. Yes. And you feel reasonably content? Yes. very freely. Exactly. You're not lonely. I mean, I love company. I love talking to people. Yeah. But by the same rule, I am not fazed by being on my own. I love my own company." (Fiona, 85)*

Mathew, a cochlear implant user, expressed that mental wellbeing for him meant feeling comfortable and stable in life whilst dealing with life struggles:

"But it's just a case of, to me, it means, it's just, just being comfortable … and a bit of peace and harmony in your mind … in your life, you know, just being comfortable with things not going [sighs] right, not getting worked up about stuff. So, to me, it's a very rounded things, it's not just one, oh, I can hear now, I'm feeling better. I'm not. It's a lot more to it, I just realised, there's so many bits in this little chart that." (Mathew, 57)

Interestingly Mathew mentioned that after he received a cochlear implant, his newly improved hearing ability increased his feelings of being able to manage everyday life, again showcasing the relationship between hearing loss and mental wellbeing, in both cases, when hearing is decreased and when it is increased. Despite this, he expressed that other life events that occurred continued to affect his mental wellbeing, and thus dealing with mental wellbeing is an ongoing process that will be continuously impacted by the shifting of life circumstances.

A factor that also aided managing everyday life, as expressed by PHL was having a positive outlook. Recognising the positive aspects of one's life and appreciating these were expressed as being central to the concept of mental wellbeing. Clare, a retired secretary, expressed:

"Strength, I think. Being positive. Half full. I've always had a positive attitude, you know. There's a solution to everything in life, you may not like the solution, but there is one. I keep trying to tell my granddaughter, you know, don't stress about A levels. If you fail, there is another solution." (Clare, 65)

Clare's definition of mental wellbeing expressed the importance of recognising that life circumstances are interchangeable, and that negative events are not permanent in life. This was central to maintaining a positive perspective in life for

her. Maintaining this positive perspective can become difficult for some PHL, as sensorineural hearing loss is a persistent, untreatable condition, and in most cases worsens over time.

Roy's definition of mental wellbeing largely focused on maintaining a positive outlook in life also. He expressed the importance of receiving social support to aid him in seeing the positive aspects of life, that maybe difficult to achieve alone.

"From before the operation to now, you've got to look on the positive side. With the mental health, you've got to have people round you to help you. You really can't do it on your own. Because the more you think about it, the more depressed you get. You've got to override it. A lot of people see the negative side. Took me a long time to get out of it. And we've talked about this, so often, in the positive side of, well, not totally all there, need to help others. But as long as my health is okay, I can do it, but then again, you get your lows and highs, sometimes, I think positively, and (…) (don't). You've got to have the happy medium." (Roy, 63).

Data from the interviews suggests that these central factors identified for mental wellbeing can be directly related to hearing loss. This is because mentioning hearing loss in relation to mental wellbeing was avoided, the data analysed was unprompted by PHL as the meaning hearing loss has for their mental wellbeing emerged throughout the interviews, indicating its critical importance. Understanding what constitutes mental wellbeing for PHL provided initial understandings into the factors that were relevant for understanding how hearing loss could lead to low mental wellbeing in this specific population.

4.7.2. Introduction to Grounded Theory and How it was Formed

The present chapter presents the study's constructed grounded theory emergent from the qualitative data analysis of the 33 semi-structured interviews with individuals from various mental wellbeing experiences, age groups, types, and periods of onset of hearing loss. The presented grounded theory evolved to be all-encompassing in explaining the relationship between hearing loss and mental wellbeing, to reflect the diverse experiences of PHL and outline how hearing loss could impact the mental wellbeing for some, and potentially why it did not for others.

Following the systematic review conducted in Chapter 3, the 10 steps in the *Guidelines for Grounded theory Applications for Researchers* established were followed, during all stages of this grounded theory study. Following Step 6, this study ensured applied all core grounded theory principles. This included performing data collection and analysis simultaneously which facilitated the focused codes and categories to form early on, leading to time for the process of crystallisation which is often overlooked in the analysis stages of qualitative studies due to time pressures (Stewart, Gapp, & Harwood, 2017). During crystallisation the components of the theory began to take shape. The analysis and main theoretical categories being formed were further reviewed and

discussed in meetings with the supervision team. This resulted in numerous iterations of the theory. Below are examples of the early renditions of the theory, to transparently present how the theory evolved over time. The first representation (Figure 4.2.) of the grounded theory was done by hand and was very detailed as it mentioned most of the focused codes that fitted under each overarching category. This includes many preliminary focused codes, subthemes and themes that evolved to create the final CHAI model. As the handwritten representations of the model may be hard to read, a summary of its processes of creation, content and codes will follow next.

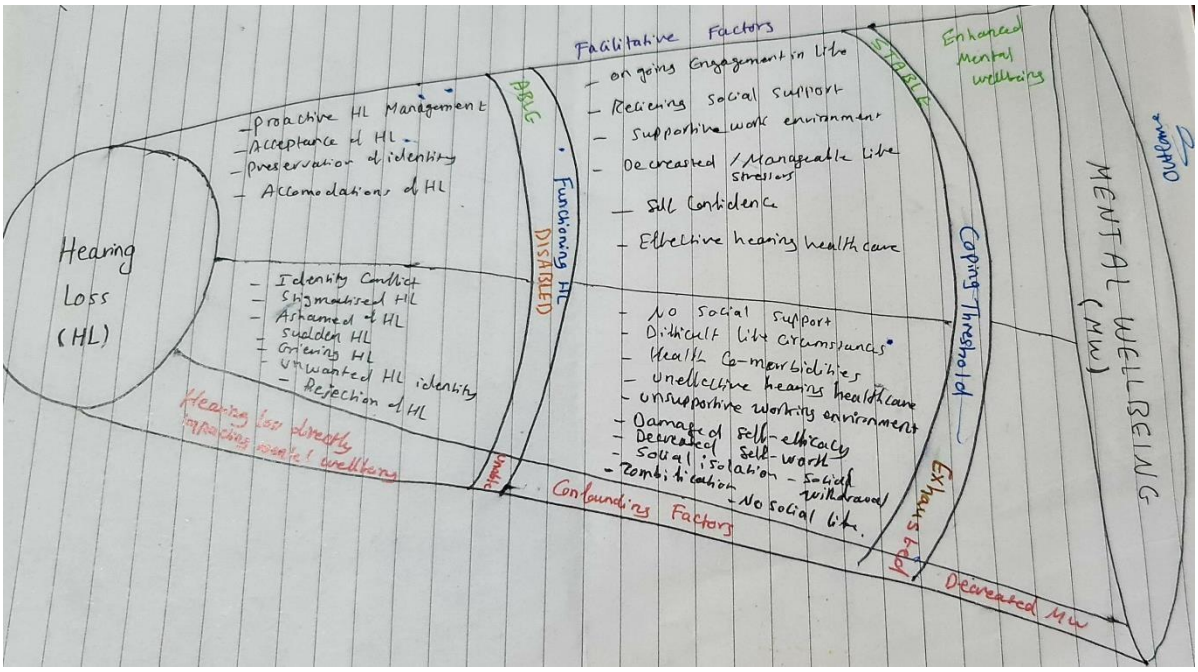


Figure 4.2. First Visual conception of this study's grounded theory

The data analysis process followed a structured approach, progressing from initial coding to the development of focused codes, subthemes, and overarching themes. The final CHAI model was constructed through constant comparison, of these initial themes, and memo-writing reflections on the process of combining themes to ensure analytical depth and coherence. Early iterations of the main themes included: *Hearing Loss and Identity (Theme 1):* This theme captures the varied ways individuals experience and interpret hearing loss (HL). The focused

codes identified included *proactive HL management, acceptance of HL, preservation of identity,* and *accommodation of HL*, forming a subtheme of adaptive identity processes. In contrast, another subtheme—identity conflict and stigma—emerged from focused codes such as *stigmatized HL, shame, sudden HL, grieving HL, unwanted HL identity,* and *rejection of HL*. These findings highlighted the tension between adjusting to HL as a part of identity versus struggling with its social and personal implications.

Facilitative Factors for Mental Wellbeing (Theme 2). This theme encapsulated the conditions that enable individuals with HL to maintain or enhance their mental well-being. The subtheme of external support mechanisms emerged from focused codes such as *ongoing engagement in life, receiving social support,* and *supportive work environments*. Additionally, the subtheme of personal resilience and self-management was shaped by focused codes like *decreased/manageable life stressors, self-confidence,* and *effective hearing healthcare*. These elements collectively function as protective factors that help individuals maintain stability and cope with HL.

Confounding Factors for Mental Wellbeing (Theme 3): In contrast to facilitative factors, this theme identified the challenges and barriers that contribute to decreased mental well-being. The subtheme of external barriers was formed from focused codes such as *lack of social support, difficult life circumstances, health co-morbidities, ineffective hearing healthcare,* and *unsupportive working environments*. Meanwhile, the subtheme of internal struggles emerged from focused codes like *damaged self-efficacy, decreased self-worth,* and *social isolation (withdrawn, zombie-like, no social life)*. These factors exacerbated distress and contributed to negative mental health outcomes.

Coping Threshold (Theme 4): This theme represented the dynamic interaction between facilitative and confounding factors in shaping mental well-being. The subtheme of stability (leading to enhanced mental well-being) was supported by focused codes linked to resilience and external support. Conversely, the subtheme of exhaustion (leading to decreased mental well-being) was driven by the cumulative impact of external barriers and internal struggles. The threshold between stability and exhaustion highlighted the fragile balance individuals with HL must navigate to sustain their mental well-being. This structured analytical process ensured that findings remained grounded in the data while allowing for theoretical abstraction.

Upon review by the supervision team, it became evident that despite some primary processes of how hearing loss can impact mental wellbeing have been identified, this initial theory was too detailed and did not explicate causality well. The grounded theory this study aimed to develop is one that clearly explained the relationship between hearing loss and mental wellbeing with a clear representation of central factors impacting this relationship. Thus, the first visual representation failed to indicate directionality of impact. Subsequently, more refinement was made to condense the theory's components. This task also involved designing a grounded visual theory that explained the relationship between hearing loss and mental wellbeing, in a causal nature, making clear which factors can have an influence and show an indication of *how*.

The next two renditions of the theory aimed to better represent the causal relationship between hearing loss and mental wellbeing (Figure 4.3.; Figure 4.4.). The main themes of the CHAI modelled evolved in these renditions of the

grounded theory as they evolved from the first iteration after constant comparative analysis and memoing analysis reflections and theme sorting. These versions of the theoretical model improved it's previous iteration by providing a structured framework for understanding the impact of hearing loss on mental well-being by integrating key themes and focused codes. They highlight the dynamic interplay between the themes: identity, coping mechanisms, control factors, and external support, helping to explain why some individuals experience stable mental well-being while others face psychological distress.

Hearing Loss as a Disruptor of Identity and Mental Well-being: One of the core themes in the model is hearing loss and identity shift, which illustrated how hearing loss fundamentally disrupts an individual's sense of self. The focused codes within this theme, such as *stigma of hearing loss, hidden hearing loss, loss of autonomy,* and *mourning hearing loss*, highlight the direct negative impact of hearing loss on mental well-being. Many individuals struggle with identity conflict, feeling disconnected from their previous sense of self, particularly if hearing loss is sudden or progressive. The model explicitly stated that no positive impact of hearing loss on mental well-being was found, reinforcing that, without intervention, hearing loss is inherently distressing.

This identity disruption can result in social withdrawal, self-stigmatisation, and a diminished sense of autonomy, leading to increased emotional distress. However, the model also introduced the concept of identity transformation, wherein individuals who accept their hearing loss identity may navigate these challenges more successfully. The presence of an identity shift from conflict to

acceptance was identified as crucial in determining whether individuals experience stable or decreased mental well-being over time.

The Coping Threshold- A Psychological Balancing Point: A critical feature the model captured was the coping threshold, which acted as a mediator between hearing loss and mental well-being outcomes. This threshold represented the point at which an individual's ability to cope determines whether they experience stable or decreased mental well-being. Those who crossed the threshold toward stability tended to adopt proactive coping strategies, while those who failed to develop effective coping mechanisms were prone to experience mental exhaustion and distress.

Within this framework, coping strategies were categorised under the theme of coping styles, with focused codes distinguishing between adaptive and maladaptive approaches. Proactive coping, acceptance coping, and supported coping contribute to positive mental well-being by encouraging individuals to actively manage their hearing loss. In contrast, inconsistent coping, passive coping, and survival coping are associated with increased psychological distress, as they indicate a lack of effective adaptation.

This distinction highlighted that mental well-being is not solely dictated by hearing loss itself but rather by how individuals respond to it. Those who engaged in active acceptance and seek support were more likely to maintain emotional stability, whereas those who resisted adaptation or lack coping resources were likely to struggle significantly.

The Role of Individual and External Control in Mental Well-being: Another key insight from the new model iterations was the interaction between individual control and external control, which together influenced how well an individual

adapted to hearing loss. Individual control referred to the personal actions and decisions taken to manage hearing loss, with focused codes such as *no device adoption* and *no compensation for loss of quality of life* representing barriers to positive adjustment. Individuals who failed to adopt hearing aids, assistive devices, or other compensatory strategies could experience ongoing frustration, communication difficulties, and diminished quality of life, further exacerbating mental distress.

Conversely, external control encompassed support systems and environmental factors that shaped an individual's adaptation process. Focused codes such as *social support, health services support, occupational support*, and *unmet needs (companionship, communication, environment of life)* indicated that the presence, or absence, of external resources played a significant role in determining well-being outcomes. Those with strong social networks, access to effective hearing healthcare, and supportive work environments were more likely to maintain mental stability. However, those who lacked these external resources often experienced greater emotional and psychological struggles.

By integrating both individual agency and external influences, this new model provided a nuanced understanding of why mental well-being outcomes vary among individuals with hearing loss. It suggested that while personal coping strategies are crucial, they are not sufficient on their own, external support systems must also be in place to facilitate successful adaptation.

Now that not only how, but also why hearing loss impacted mental wellbeing was captured through the focused codes, subthemes and themes in the third version of the grounded theory, a more refined and clearer visualisation was needed to convey this process more accurately.

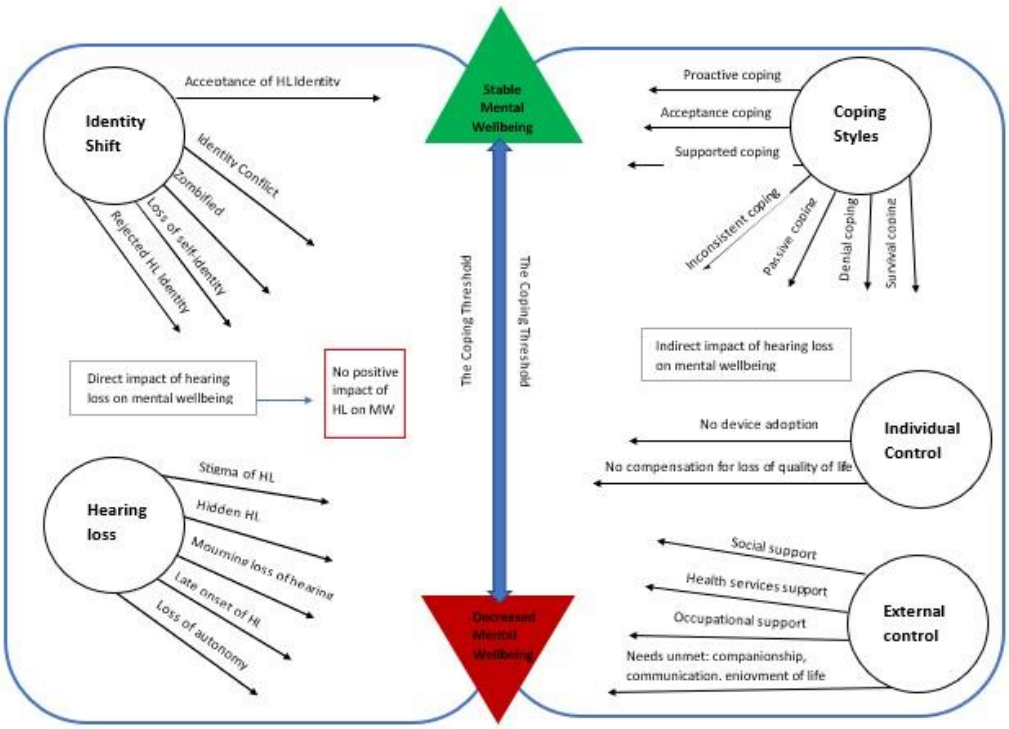


Figure 4.3. The second iteration of the grounded theory

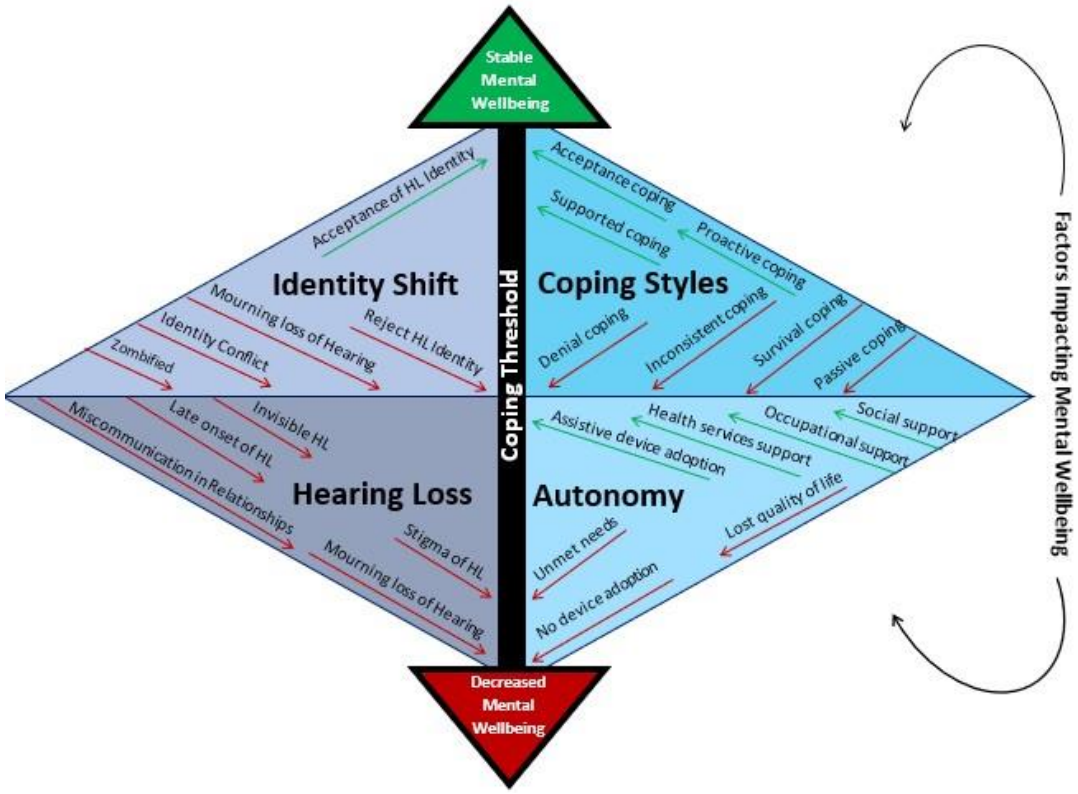


Figure 4.4. Third iteration of the grounded theory

After finalising the analysis of all 33 interviews, and another crystallisation period, the grounded theory was reviewed a fourth time and a more causal, and intelligible theory was formed based on the format of a thermometer (Figure 4.5.).

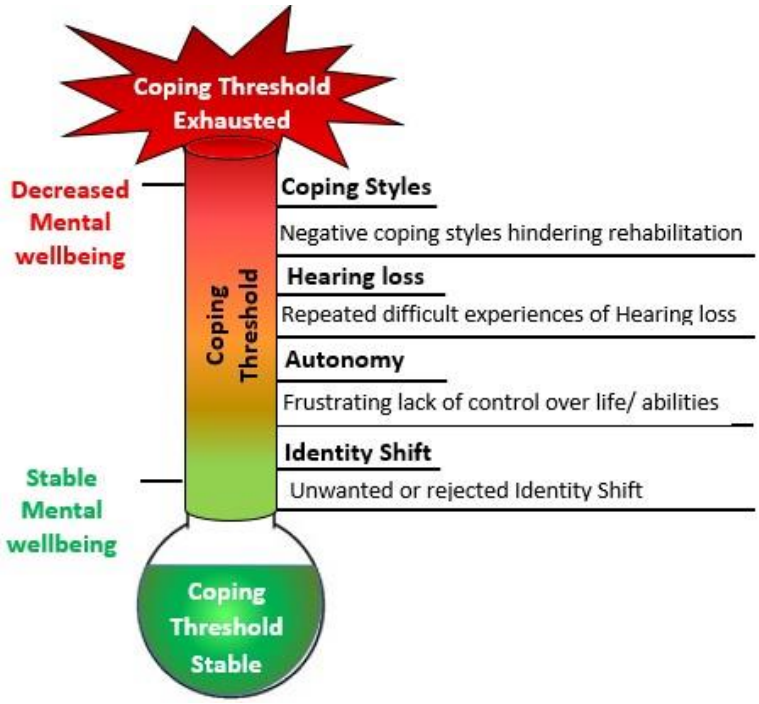


Figure 4.5. The Fourth iteration of this study's grounded theory explaining how hearing loss impacts mental wellbeing

After reviewing the theory again, this visualisation seemed to succeed in presenting the causal relationship between hearing loss and mental wellbeing whilst outlining the causal factors involved. However, as this theory only explained how hearing loss does impact mental wellbeing, a representation of how for some PHL hearing loss does not impact their mental wellbeing was needed. The final visualisation of the theory needed to represent the differences in experiences of mental wellbeing in PHL, as displayed in the data analysis. The final rendition of the theory presents understandings of how hearing loss could impact mental wellbeing, and why for some participants it didn't have any impact, thus visually establishing that difference between both groups. This led to the formation of the fifth and final grounded theory.

4.8. The Emergent CHAI Grounded Theory

This section discusses the emergent grounded theory formed based on the analysis of 33 interviews with PHL. Each main component (core theoretical category), and subcategory (focused code) of the g Explaining the coping threshold rounded theory are explained in detail, with quotes from participants to illustrate each point. In grounded theory, the core theoretical category embodies the main findings of the analysis, which is essentially embedded in the contextual actions or consequences of the studied phenomena (Charmaz, 2014). The focused codes represent the related subcategories that were grouped to form the overall theoretical codes (Charmaz, 2006, 2014). In total, the present grounded theory consisted of five main theoretical categories that influence the relationship between hearing loss and mental wellbeing: *Coping Threshold, Coping Styles, Hearing Loss, Autonomy, and Identity Shift*.

The grounded theory was given the name CHAI as it is an acronym formed from the first letter of each theory component. Each theoretical category of the CHAI theory will be discussed below in a cumulative order that explains the process of how hearing loss can impact mental wellbeing. This process begins with *hearing loss* as its degree or restrictions can impact PHL's sense of *autonomy*. This can cause a perceived change in PHL's sense of self such as in their personality, or ability (*identity shift*). This deterioration in ability can lead to PHL's *coping threshold* to be impacted, leading to low mental wellbeing if they struggle to cope. How well PHL subsequently deal with hearing loss in their daily lives can depend on which *coping style* they continue to adopt. Figure 4.7. provides a visual representation of the CHAI grounded theory.

Social relationships were identified as a significant construct within the data; however, an analytical decision was made to exclude from the final model due to its overarching and intersecting nature with multiple themes rather than functioning as a distinct category. While participants frequently discussed the role of social connections in shaping their experiences, these discussions often intertwined within each of the five key themes of the CHAI model. Including social relationships as a separate component risked redundancy and potential overlap, which could obscure the clarity of the model. Instead, social relationships were considered an underlying contextual factor influencing other aspects of participants' experiences rather than a standalone theme.

This decision was made through a reflexive process, wherein I critically examined how themes were constructed and evaluated their contribution to the coherence of the final model. By engaging in constant comparison and memowriting, I ensured that the model remained analytically robust and that decisions were not driven by preconceived assumptions but by a transparent and iterative process. Additionally, I acknowledge my role as a researcher in shaping the analytical process, recognising that themes do not simply 'emerge' but are actively interpreted and constructed. As such, I have refined the language throughout this chapter to reflect this co-constructive process, ensuring alignment with the study's philosophical approach.

4.8.1. Hearing loss

Hearing loss is the second component of the CHAI model identified to impact the mental wellbeing of individuals with hearing loss. Analysis indicated that characteristics of hearing loss was a core category that influenced how the mental wellbeing of patients was impacted. Characteristics of hearing loss were

grouped according to five components (focused codes): (1) Invisibility of hearing loss, (2) Social participation restriction, (3) Hearing loss Stigma, (4) Sudden hearing loss: *'Terrifying'*, and (5) Mourning loss of hearing.

4.8.1.1. Invisibility of hearing loss

Unlike more visible physical disabilities, hearing loss is an internal and invisible condition. It is difficult to identify people with hearing loss if they are not wearing a hearing aid, or if their hearing aid is not visible due to being an in-ear model, or hidden behind hair etc.

"Hearing loss is an invisible infirmity (Mary, 72)."

Due to this, participants reported being commonly perceived as more "able" than they believed they were, and which in many cases pertained negative impacts.

"I was in a shop with my mother, and I was told off by a woman, because I didn't hear her behind me and I didn't know I was blocking her way. Because I have no visible signs, the person wasn't interested in the fact I couldn't hear her. These things get you down." (Roy, 63).

Roy explained that due to the invisibility of his hearing loss, he was treated rudely by staff in a shop, who did not detect his sensory disability. Roy further explained that instances such as these, where he misses certain interactions, and is treated crudely for it, continuously led to feeling down, and having a decreased mental wellbeing, as the PHL is treated unjustly and is misunderstood.

Bobby shared experiences of discrimination in his workplace where he received no financial support to aid him living with his disabilities, including hearing loss. He explained that when the evaluator saw he was able to somewhat interact they classified him as ineligible. However, many impacts of hearing loss are not visible in one verbal interaction, including its impact on PHL's mental wellbeing.

"I could do with retiring, I even tried to claim benefits to help me with the physical side, the government basically says, well, you don't qualify for the benefit. Depression is supposed to be counted amongst, on the same thing, as a disability. My hearing loss is supposed to be a disability…but, of course, that, to me, neither of them are considering work…From her point of view was I could hold a conversation which was lucid, therefore, I'm able. And I said, I can't do anything. Just because I can talk…" (Bobby, 62.)

This misconception of PHL's identity negatively impacted their mental wellbeing as they are less likely to receive the required accommodation for their hearing loss. The invisibility of hearing loss can lead to it not being detected, or the extent of hearing loss can commonly be underestimated or unapparent.

Numerous reports from PHL indicated that people they interacted with lacked understanding of the impact of hearing loss, and the degree to which it causes restrictions:

"The fact is that hearing loss is an issue that they might not have known, because it is invisible otherwise, and a hearing aid doesn't, stops it being invisible." (Bryan, 42)

Grace also expressed experiencing discrimination from individuals with other disabilities due to her invisible hearing loss.

“But that's where that for example is conflict because you want people to see and understand that you are unwell and that you can't, you're not capable of doing things. I suppose it's like the hearing, like now I haven't got my hearing aids in, but you wouldn't know that. My ears are popping. So, like your external and internal conflicts, that's where it conflicts as well, so people's perception of you. And I've had problems before because I've got a disabled badge, I have actually had from abuse who are disabled. Who say, "You're not disabled!" And you know.” (Grace, 25).

Although Grace had a disability badge, she was seen as not needing it, as visibly, she did not seem disabled. This led to a negative altercation. The lack of understanding from others can create a conflict as despite a PHL informing others of their hearing loss, the extent to which it inhibits them can be underestimated, or not believe all together. Overall, the impact of the invisible characteristics of hearing loss led to stigma, discrimination and overall feeling down. These factors all further indicate the negative impact living with hearing loss can have on the mental wellbeing of PHL.

4.8.1.2. Social participation restriction

As established, communication, interaction, and socialisation, are basic integral human needs that is sought out by most people.

“Communication is something that we need. Everybody seeks it out well a majority of people.” (Hayley, 27)

Evidently, an important factor for explaining the impact of hearing loss on mental wellbeing was the PHL’s perceived extent of participation restriction in everyday life. It was detected through analysis that PHL’s ability to successfully communicate became heavily constrained by hearing loss, restraining

participants' ability to socially engage fully in life. Three subcomponents were identified to explain PHL's perceived social participation restrictions in more detail: social isolation, cognitive exhaustion, and hearing loss 'zombifies'.

Social isolation

One of the biggest constraints of hearing loss PHL faced was becoming isolated from their social groups/world. This is because many PHL come to feel they can't successfully participate in simple social interactions which impede their quality of social life. Emphasising this, Rachel expressed continued difficulties socially interacting despite wearing a hearing aid, as the conversational impact of hearing loss is often underestimated:

"What people don't understand, is they think oh they have got hearing aids they can hear. You are never going to be able to hear as well as other people can, and people underestimate that. I think people forget I can't hear as well. And they talk to you, and you miss so much and don't know how to act. Normally I just nod and smile, what did I get out of that? Bits and pieces, so basically nothing. So, I can feel alone in a lot of conversations." (Rachel, 56)

The frustration reflected by PHL indicates the magnitude of information and connection they miss during social interactions, and not being able to meet the conversational expectations of most other speakers in conversations. Other participants expressed that they felt their life became turned on mute as they couldn't fully hear others during social interactions. This led to feelings of loneliness in PHL and then becoming unable to participate with others or strengthen their interpersonal relationships. Mary related feelings of isolation to her hearing loss experience:

"I have to be involved. I don't like being isolated. That's a good word. Hearing loss is isolating." (Mary, 71)

Clare also stressed the intense feelings of isolation she experienced after suddenly losing her hearing. This led her to feeling completely alone, and distressed due to being unsure whether she could cope alone:

"Right at the beginning, when you suddenly lose your hearing, you feel isolated. Completely isolated. And you don't realise what's going to happen next, you know, because you suddenly go deaf and you think, Shoot, how am I going to cope? Suddenly isolated. At a stroke." (Clare, 65)

PHL expressed a sense of loss at not being able to partake in social interactions as well as they could have previously, which lead to them feeling down. Rachel shared:

"I think for me cause I'm a people person it's about the social side whether that me seeing friends, going out for meals, playing sport it's that social side. I'm a people person not a loner if you are a people person communication is huge and just gets me down. Now I feel like I have had some of that taken away from me so for me it's about that social aspect, it's about keeping in contact people on a level where I can hear, and they can understand me as well." (Rachel, 56)

Most PHL reported feeling socially excluded during daily interactions. Participants expressed that once excluded from their social group(s) and they reported feeling extreme feelings of isolation from the inability to have meaningful social interactions with others. Bobby explained he no longer had a social life and became socially excluded due to his hearing loss:

"I'm tired out, I don't have any social life at all. So, unless you started it (the conversation) off, you actually couldn't participate in any shape or form. So, people always used to say You're quiet, you don't say much, they used to, some people formed the impression that you were rude. That you were aloof, that you thought you were higher or better than them, because you weren't, you know, they were having a good old laugh, and you weren't interested at all. Also, you withdrew from the groups, the pub, or the dinner, whatever the situation, you withdrew quite early because, in the end, you felt … as though you were excluded. And, so you, there were several forms, you felt excluded, and therefore you felt that there wasn't any point being there. You felt pain because it was getting to your good ear, and then And, you just had to leave." (Bobby, 62)

Being unable to interact, converse, hear others, and self- express has led PHL to have less than lively social lives. Participants expressed that the restricted communication caused by hearing loss led them to self-isolate, and willingly choose avoiding interaction because communication would still be impaired. Nelly shared:

"I think socially I am not as out-going as I was with people that I don't know, with people I do know as well if they don't know about my hearing loss if that makes sense, so socially I'm not as out-going and bubbly as I was. I sometimes don't go to social things now because I think it won't be worth it, I won't be able to hear." (Nelly, 63)

Participants indicated that social isolation complicated their ability to cope with their hearing loss as in addition to the restrictions caused, also didn't feel socially supported. Mental wellbeing decreases in PHL that were repeatedly

unable to socially connect and engage, as they became more isolated and alone.

For some participants the biggest restriction caused by hearing loss was social exclusion. Feeling socially excluded negatively reflected on some participant's self-image, where they felt socially inadequate and a perceived social failure.

"The biggest impact of hearing loss I would think … is social exclusion. Because I feel my life is a failure, because I don't feel included in anything. I don't have any friends per se, other than my partner. I have my immediate family, but even some of them have problems dealing with mental side. I don't feel as though I can go to a party, or to a group and be part of it, and enjoy things. I want to be included. I want to be part of a group. But I don't think there's any groups that I could be part of which would, at this moment in time, accept me. It's a bit like, in a way, being a minority. And not being included in the majority." (Bobby, 62)

PHL social exclusion due to their hearing loss reflects their perception of becoming a minority, as they are excluded from the collective social group, which others are 'normally' included in. What dictates who's in and who's out of this group is good hearing and communication. Thus, having unfulfilling relationships with others due to hearing loss can lead some PHL to have decreased levels of companionship and increased social isolation and withdrawal. This could ultimately inhibit PHL from engaging in self-expression and strengthening their social connections and relationships.

The impact of the social restrictions caused by hearing loss for some grew into a reoccurring social anxiety during interpersonal interactions, which created a pattern of withdrawing from social situations:

"So, in terms of social events, I perhaps am not as, you know, if I don't have to go, I won't, you know, or I'll pick something that is easier to do. The cinema is making more effort for caption performances, putting the subtitles on, and all the rest of it, then yes, if it's doable. So, I think, overall, yeah, in terms of, certainly interactions outside of work, I would probably say, yes, it has had an impact and certainly, in terms of that whole life experiences which has probably led to why there's an underlying edge of experience, the anxiety, yeah, the hearing loss has impacted that." (Harriet, 56)

Mary also implied her hearing loss caused her to become more socially withdrawn, hearing loss being identified as causing not only low mental wellbeing but mental health problems such as depression.

"I'm struggling. And I found that I'm avoiding social occasions now. (Pause). I am prone to depression. And a lot of the time it's the hearing that's causing it." (Mary 71)

Bobby also associated his hearing loss with his depression and feeling disabled and inactive as a consequence:

"With my hearing loss, it's depression. I can't do anything. I don't do anything; I am just not bothered about anything." (Bobby, 62)

The impact of mental health on hearing loss due to social restrictions became apparent by participants linking their hearing loss to developing social anxiety

and depression, reflecting the daily social and mental strain hearing loss has, and how it can negatively impact mental wellbeing. This further establishes the importance of maintaining a healthy social life, by the continuation of communicating and interacting with others.

Cognitive exhaustion

Most PHL outlined that their hearing loss caused them to apply greater focus in their daily conversations. This was done by applying significantly greater cognitive effort to help listen better in demanding hearing situations (e.g., when talking to more than one speaker, or experiencing loud background noise). Rodger highlighted this issue stating:

"It's not only difficult to communicate in that circumstance it's also actually exhausting I presume it's just the noise and the brain trying to cope and the meeting environment." (Rodger, 89)

Harriet also confirmed this stating:

"In a noisy environment, in a restaurant, after you've concentrated so hard during the day, no, I would go, sorry, folks, I'm being Billy No-Mates here, I'm going to just go (home) and sit quietly, to be able to kind of, recharge ready for the intensity of the next day." (Harriet, 56)

This indicates that the extra cognitive effort given in these social interactions can lead to engaging in social withdrawal as PHL can no longer follow conversations or become socially burnt out. Rachel also said:

"People forget or couldn't possibly know how tiring it is because hearing is just second nature you just do it while you are doing 10 other things, I can't do that anymore because I will miss a lot of it and I've found that I'm really, really tired at the moment. I am absolutely exhausted and I think it's hearing all day especially when I was at work because for me it's so much more effort to listen as it is for other people it's absolutely quite shattering at the end of the day you think why am I so tired all I've done is been to a meeting but it's that extra effort in lip reading, listening concentrating you know whatever it is you are doing even socially because of the background noise its tiring." (Rachel, 56)

Self-withdrawal was commonly applied as the way to deal with the impact of cognitive exhaustion. It is apparent rest is needed every day to recover from exhaustion and recharge for the next day. The cognitive exhaustion caused by hearing loss can lead PHL to avoid social situations, commonly for cognitive rehabilitation (relaxing their minds etc). Thus, cognitive exhaustion could subsequently become a contributing factor for developing social isolation which overall decreases PHL's mental wellbeing.

Hearing loss '*Zombifies*'

Due to the issues outlined thus far in the results, the social isolation, exclusion, withdrawal, and cognitive exhaustion; PHL increasingly likened not being able to hear in social environments as being "dead". They described undergoing a process likened to zombification where their ability to engage in their own life and with others in a lively manner decreased rapidly overtime. Alex, an undergraduate student described this zombification process stating:

"The patience the wiliness to communicate with people, the little remarks the little humour everything It just goes. It kind of Zombifies you in a way (Hearing loss). It is living lobotomy." (Alex, 23)

Peter also expressed living life with hearing loss made him feel he was just a bystander, and not living in his own life:

"After so long of being isolated it's like being in solitary confinement really or worse it's like watching a film on mute on because you are watching the world, your world, your life, and they are laughing and joking, and you don't know why. You're dead in your own film." (Peter, 33)

This indicates that although PHL see life around them, they can feel like observers in their own life, as they feel less able to be a part of it. Some PHL have likened their detachment from life to feeling like they're living in a 'dead' state. Rodger also indicted that if he is unable to hear in seminars and social events, he feels interactionally dead:

"Most of the time in interactions I'm dead. If I get to the front get hold of the speaker and say I'm deaf come and put this round your neck (hearing link?) its fine except you don't hear the questions. But if you don't do that you are dead and even then, in the breakout sessions and networking you can get so far with using this in interviewing mode, but it's well you clearly being disabled." (Rodger, 89)

This zombified state may be an extreme representation of the extent of disengagement some PHL feel are in their lives. Lenny reinforced this sentiment stating:

"When I can't hear I'd be going round like a zombie or something like that do you know what I mean I said to my daughter you know if I can't hear you, I might as well not be here at all." (Lenny, 77)

This dead state seems to be associated with their decreased ability to engage socially in lives different settings. Therefore, hearing loss can lead PHL to feel zombie- like in their day to day lives with decreased or no enjoyment of life. The disengagement implies that PHL's mental wellbeing decreases when they experience little social gratification and consequently their quality of life becomes low.

4.8.1.3. Hearing loss Stigma

Stigma is a related phenomenon many PHL associated with their hearing loss. Stigma can be defined as the strong, yet unjust, disrespect, discrimination, and negative perception of individuals in society (Link & Phelan, 2001). People with hearing loss in this study reported being stigmatised due to their hearing loss in different ways.

Reduced mental capacity

PHL indicated that some individuals they interacted with in their daily lives would perceive them as "less able", not only in a hearing capacity but in a mental capability one also. They indicated that these misconceptions commonly stem from negative societal connotations associated with a hearing loss. Labels associated with hearing loss and reduced mental capacity included dumb, stupid, slow, and being intellectually disabled. A quote by young Olivia expresses her frustration towards the societal stigma of hearing loss:

"There's stigma, just the stereotypical, a deaf person's old, a deaf person's stupid, or, like, or if they do think of deaf people and young people, they think of someone that's really severely disabled, when, actually, it's not always the case. It's just an electronic device, that's all it is. And like, a wheelchair person, if they're in a wheelchair, they're fine, sometimes need adaptions, they cope, it's the exact same. Whereas it seems more acceptable to be like, wheelchair as it's very obvious, but then, glasses, it's obvious and it's like, it's the same, it's just ears, it's no different. [laughter] There is no difference between eyes and ears, really, there really isn't. But just kind of one of those stigmas." (Olivia, 18)

A quote by Elisa, an older participant expressed the same frustrations:

"Now I'm quite an assertive person and I'm quite gregarious and smart personality. But having to keep asking people "Excuse me, excuse me, can you repeat that?" And unfortunately, we still haven't got rid of this stigma, and I'd say, "I'm sorry I'm a hard of hearing, could you repeat that?" (Elisa, 71)

Some PHL expressed becoming targets for bullying and ridicule due to their hearing loss disability also:

"Look, this guy has been bullying me for a long time. He has an issue with me, I don't know what it is, he has been bullying me, it might be because he feels I'm aloof, and I don't hear properly, because I don't hear, I don't know. And, basically, they have done nothing, they are not willing to do anything. I have tried to change my shift pattern, so I don't work with that person, and they won't do that." (Bobby, 62)

Harriet also shared similar experiences in her workplace:

"Co-workers, there were people, and I remember he actually put on a calendar with my picture, he actually put a little sticker on it, that went "What?" or "Pardon?" or something and stuck it on my desk." (Harriet, 56)

Mary experienced similar discrimination due to her hearing loss which caused her to feel negative effects such as humiliation, shame, ridicule, and embarrassment:

"We've still got that rubbish stigma. It was awful, awful. It was humiliating. I think as my hearing deteriorated (pause) started to get, embarrassed [and a little bit upset, because unfortunately, we still haven't got rid of this stigma, and I'd say, "I'm sorry I'm a hard of hearing, could you repeat that?" And the people who still today "Sorry didn't hear that?! Ha, ha, ha." And you know it's not funny. (Laughs) You know? What is funny about it?" (Mary, 72)

The bullying due to hearing loss was also reported by younger PHL, indicating that societal stigma is continuing, and negative perceptions of hearing are likely being passed on to younger generations: On impact of hearing loss on life Olivia said:

"I think it has in some ways… Kind of like, growing up, and the bullying because of my hearing and wanting to socialise. But then it's made me stronger for it, so." (Olivia, 18)

Being wrongfully stigmatised and given labels that are not true to a PHL's own identity can subsequently cause individuals to think negatively of their hearing loss, and subsequently themselves, which lowers their feeling of mental wellbeing. Experiencing discrimination from others on numerous occasions due to their hearing loss could have adverse effects on their mental wellbeing, as

being a bully victim has been associated with decreased mental wellbeing (Cosma, Whitehead, Neville, Currie, & Inchley, 2017) and the development of mental health difficulties (Coggan, Bennett, Hooper, & Dickinson, 2003; Rigby, 2003; Verkuil, Atasayi, & Molendijk, 2015). This can occur frequently due to the chronic nature of hearing loss.

Stigma of Aging and hearing loss

Many participants indicated that hearing aids themselves are stigmatised devices associated with older people, because they are most frequently seen wearing them. Therefore, PHL indicated that they were seen as older than their actual age, which they disliked and did not want.

"You look at yourself, and think, well, I've got a hearing aid and, so I just think that that's why there's probably a little bit of resistance to it, because it's just a reminder that, you know, life is finite and that you do deteriorate and physically, you're not as fit as you were and it's written large on the side of your head or on the front of your head or whatever it is." (Bryan, 42)

Bryan indicated that due to aging being related to becoming less physically able and mortality he did not want to be associated with aging to that level. Despite having presbycusis, some individuals did not associate their hearing loss with their age at all:

"You think you're getting old. And you think to yourself, well everybody else has said that people get old and slow down and I don't like to think like that. "But it does come up in your mind like that. Is my hearing loss because I'm old? I don't feel like I'm old." (Dan, 72)

The concept of feeling young in an old body was reinforced by Bryan, who indicated that as one ages, how they view themselves can remains the same as in their early adulthood, and not become altered by age, aiding to further explain the disliked associated between the process of aging and hearing loss:

"I suspect, when I'm sixty, I will feel the same as I feel now, which is probably the same as I felt when I was about twenty. Because, when you're a kid, you realise you're ageing, but once you get to adulthood, you kind of stop almost at 20." (Bryan, 42)

The association between hearing aids/loss and ageing was therefore undesired by many PHL, and it even influenced some to delay or even refuse hearing aid adoption:

"I think I didn't want to look ninety when I was forty. [Sighs] Vanity. Sheer and utter vanity. [laughter] I didn't want anybody seeing my hearing aids." (Jenevieve, 78)

Self- Stigma due to hearing loss

As seen in the perceptions of aging and hearing loss, PHL's own attitudes towards hearing loss could also become stigmatised. The negative views and associations a PHL had regarding their hearing loss was found to influence their hearing loss negatively, which impacts their own acceptance and management of their condition. Rachel expressed:

"I can't help how I feel. I do have a real stigma about my hearing loss and I know it's silly because nobody cares these days we are much more open about disabilities I haven't got my leg missing it's nothing compared to that but it does

affect me in my day to day life it's affecting me more, the thing you are looking at its affecting me with my mental wellbeing as well definitely." (Rachel, 56)

Rachel indicated that although she realises nobody cared, she would still consider how others in society perceive her and be preoccupied by that daily. Thus, some PHL therefore struggle with accepting their hearing loss due to the preconceived stigmas they have regarding their own condition.

"One of the things that worries me about being able to hear and the support you get and the fact that I am not open about it, I know that's my problem and my issue and it's really just me." (Jenevieve, 78)

The self-stigma PHL holds over hearing loss can be even more debilitating than societal stigma, as it can act as a barrier to seeking audiological and social support. PHL's negative connotations towards hearing aids shows they are less likely to avoid pursuing audiological rehabilitation. Overall, stigmatising one's own hearing loss can lead to the continuation of experiencing participation restrictions in everyday life, and thus continued decreased mental wellbeing.

4.8.1.4. Sudden hearing loss: *'Terrifying'*

Noticeably, the type of hearing loss that was most associated with negative impacts on participants' mental wellbeing and subsequent mental health, was sudden hearing loss. PHL most impacted by their hearing loss had in common that they had experienced sudden hearing loss. Sudden hearing loss occurs when an individual suddenly experiences an unexplained and rapid loss of their hearing. This was described as a traumatic and terrifying experience, with continuing negative impacts: Bobby was 27 when he suddenly lost his hearing:

"I was watching TV and I was having food, and then, all of a sudden, I couldn't hear and felt sick. And, I was down on the floor, and I just couldn't get up, every time I raised my body or my head, I just felt worse, I felt so sick, terrifying. I, the only time I felt any relief was when lying flat. I managed to crawl upstairs which was a pain because I was going up at an angle, and get myself into bed, and that was the first symptoms. I, my then wife called the doctor's, they wouldn't come out on the Sunday. So, I had to wait until Monday. The doctor at the time just gave me tablets and said, Yeah, it'll wear off. So, I was off for two weeks. And before I went back to work, I felt I had to go back to work, because I was the manager, and you felt the responsibility of the position. So, I wasn't well when I went back to work, but, I was coping. After that, I ended up, I went to the doctor's again, and said I still can't hear, and, for the first time, I wasn't actually told anything about my hearing. Then I noticed that, on the wall of the waiting room, a sign that said Tinnitus. And I noticed that I had a ringing in my ear, in my left ear. I didn't believe I was deaf because I could hear the ringing."

(Bobby, 62)

Bobby's recollection of how his sudden hearing loss occurred showcases the unexpected and traumatic nature of the occurrence, as it occurred during relaxing on his day off at the age of 27. The sudden occurrence was frightening for Bobby, and he continued to experience the effects of this event for 35 years. At a different point in his interview, Bobby elaborated on the impact of his sudden hearing loss saying:

"When I was watching the football match and then I collapsed on the floor, that changed my life. If I watch football, it brings back exactly the same memories,

and I am thinking…I was terrified that I was going deaf.…That I (won't even) hear, as in, I was going to go totally deaf. I was that worried that I was, hold on, it's exactly the same as it was." (Bobby, 62)

This indicates that the painful and terrifying experience of losing his hearing loss suddenly created an aversion to watching football games as he would relive his traumatic experience. Due to his sudden hearing loss Bobby developed a recurring fear that he would become completely deaf, as there were no signs to anticipate in advance of this happening, he feared it could occur at any normal instant in his life.

Clare is another participant who experienced a sudden hearing loss in the year prior to the interview. She recalled:

"I had a hearing aid in one ear and then all of a sudden, just in between Christmas and New Year, my hearing just started to go. So, you know, it's quiet, it's had a terrible impact on my life. You know. And the worst thing is music. Because every piece of music is out of tune. Yeah. I mean, it's, the music, the theatre, the radio, you know, conversation one to one is okay, but a crowded room, you've had it, so. It impacts on your partner, your relationship you know? You can't do the same things together and have quality time life before. And people seem to think, sometimes, it's funny if you can't hear?" (Clare, 65)

Clare's account reflects the trauma and distress she experienced due to her sudden hearing loss, stating it had a terrible impact on her life and continues to do so. The restrictions caused by the hearing loss has led to missing out on valuable activities and aspects in life. The PHL felt she could no longer engage in music, the theatre or group conversations anymore, when she could before

suddenly losing her hearing. Clare importantly expressed the impact her sudden hearing loss had on her romantic relationship as it became difficult to engage in certain activities that used to be their quality time. Clare continued:

"I can't think of anybody I know. That's lost their hearing as quickly, in such a fashion. I mean, it's been absolutely terrifying, or dealing with it… You sort of wake up hoping, you know, suddenly you'll be able to hear again. It's like, vain hope, clutching at straws, really." (Clare, 65)

Clare described her experience of sudden hearing loss as terrifying, and the daily process of trying to deal with its impacts was terrifying for her also. Clinging onto the hope that as she suddenly lost her hearing, that it would suddenly return, could have created a false hope that helped her cope initially, but ultimately lead to hopelessness as time passed. The disappointment of PHL's hearing never improving, despite hope, was a significant factor in decreasing the mental wellbeing of PHL with sudden hearing loss.

3.8.1.5. Mourning loss of hearing

Some PHL underwent a significant process of grieving after losing their hearing, despite not their losing hearing completely it was life-changing for them. Most noticeably, Clare mentions mourning the pleasures she'll no longer be able to enjoy due to hearing loss such as listening to music.

"I told her (nurse) how upset I'd been, and she said, you're grieving for your hearing loss. So, to accept it. And as we all know, sometimes when you cry you feel a lot better. But it's difficult to accept. It's the music, it's the piano, it's the

theatre. These are all pleasurable things for me, this is my life. The nice bits, the nice bits. Cleaning up is not nice, but you don't need your hearing for that do you?" (Clare, 65).

As indicated by Clare, the sudden loss of her hearing and its negative impacts on her life were difficult to accept. Coming to terms with losing basic aspects of life which are enjoyable was very difficult for her, and something she was still coming to terms with during the interview. For many PHL, loss of hearing means losing a number of sources of enjoyment of life. Losing the key to access personal enjoyment and pleasure, particularly if PHL was reliant on hearing for much of her hobbies and activities, can ultimately lead to this grieving process.

Clare expressed frustration at the lack of a cure for hearing loss, despite the technological and medical advances in contemporary society:

"*Do you know, if we can put a man on the moon, if we can get a cure for aids, it's a microphone, why can't we do something? A transistor radio like that, and they can't fix this. Being treated, you know, there are successful treatments for AIDS and cancer, and they still can't fix my ears?!" (Clare, 65)*

Overall, Clare indicated that her sudden hearing loss negatively impacted her emotional wellbeing, as its loss continued to make her sad:

"Well, hearing loss makes me feel sad. It makes me feel …… and on the useless side. That I'm not functioning as everybody else is." (Clare, 65)

Feeling useless and dysfunctional on a daily basis shows the extent of restrictions hearing loss can have on PHL. To feel inadequate and unable to

function in daily life could cause further social and psychological constraints and ultimately decrease an individuals' mental wellbeing. This could also lead to mental health problems such as depression for PHL if not supported, or if support available such as hearing aids was not effective.

4.8.1.6. Hearing loss and Comorbidities

The relationship between hearing loss and mental wellbeing was also impacted depending on the presence or experiences of other diseases or medical conditions at the same time in PHL. This involved both mental and physical comorbidities which were officially diagnosed. Diagnosed mental health conditions included depression and anxiety; and diagnosed physical conditions included heart attacks, cancer, vestibular labyrinthitis, hydrocephalus, Meniere's disease, arthritis, and Alström syndrome.

Hearing loss and Physical conditions

Some participants that had experienced significant physical conditions were more impacted by these conditions in comparison to their hearing loss. Mathew identified his arthritis as the condition that negatively impacted his mental health, as it limited his ability to be active:

"And also doing this standing meditation on a Saturday morning, but … because I've got … arthritis in the hips, you see. But that's brought my mental health down somewhat because I like to be active." (Mathew, 57)

Tim, a retired builder, who had experienced numerous health conditions also stated that they had a much bigger impact on him compared to his hearing loss:

"Hearing aids have helped with my hearing duck (Nottingham slang). I think the worse to get over and the longest was my double pneumonia. That does knock you back. I also had a heart attack I was soon back at work, cancer same again both times I was only in about a fortnight in hospital." (Tim, 79)

Tim expressed his hearing aids helped him cope adequately with his hearing loss and that it therefore did not impact his mental wellbeing. Leanne had a similar opinion expressing that although it was difficult adopting hearing aids at first, she was able to do so. On the other hand, she continued to deal with the aftereffects of a stroke:

"I put it off and put it off and then I kept convincing myself I was imagining it because my husband by then had got his hearing aids I think I'm just imagining it. I decided to go. So, I've had them I would think now, since I went to Hidden Hearing must be 10 years I think now (…) I felt very conscious of them to start with tried to put all my hair over them it didn't bother me at home with the family but when I was out I go to an art class one of the ladies came and I said something to her and She said sorry I didn't hear that I've got hearing aids in both ears she said I make sure my hair comes down I said I had no idea you had a problem hearing until then so I thought it's stupid worrying about wearing them." (Leanne, 79)

In comparison to her hearing loss, her experience of a stroke was life-changing and caused her to develop anxiety:

"So, it was just a stroke on the right-hand side which apparently effected my left brain. My husband was the one who caught on and called the ambulance. So that sort of knocked me backwards this last year mainly because I don't feel like

doing things that I would have done before I mean my oldest granddaughter of said to me do you fancy going to see the new Mama Mia film, I said oh I'd love to and then I thought well do I because she gets off the bus and walks half a mile to the cinema and doesn't think anything of it. And things like that would never have occurred to me before I would have just done it, so I have to kind of pace myself a lot more. I've been going to a clinic because of the stroke a post stroke thing it was stoke fatigue I think it's called when I was back home this lady first came to see me it was a different lady each time and I was saying I was obviously worried about the stoke very anxious more anxious than normal because I know with it you can have more than one stroke. They were good it was mainly talking about dealing with anxiety because this stroke had caused anxiety again and I must admit the first weeks I was reluctant for my husband to go out without me." (Leanne, 79)

For Tim and Leanne, their experiences of dealing with physical conditions such as pneumonia, recurrent cancer, a heart attack, and a stroke was more impactful on them than hearing loss. Katherine who had hydrocephalus (a longterm health condition occurring due to the build-up of cerebrospinal fluid in hollow inside the brain) described coming to terms with her condition and living with from a very young age:

"I learnt that when I was at school, even at age 12, I used to go in at the beginning of each school year have a chat with my form tutor and my head of year, this is hydrocephalus this is this, that is that most of the time I'm perfectly fine every so often at that point it seemed to be roughly every 3 years something major went wrong, so every so often it will go wrong and I will start to

feel ill, start to have headaches and then I will have a brain surgery this is what happens, this is what I tell you have you got any questions so I got kind of used to it from being really young." (Katherine, 35)

Despite experiencing a sudden hearing loss, Katherine expressed that her lifelong experience of living with hydrocephalus predisposed her to expect and be prepared to deal with other health conditions she could experience as a side effect of her condition e.g., epilepsy and hearing loss. She expressed:

"Well, that's why they thought it was a tumour and I keep getting well did you have an infection and had you had a cold. No. There was nothing and they took samples of everything I mean they don't find anything I never really had a problem and therefore I didn't really need peer support as such and because I can't see anything particular changing at work, I can still have telephone conversations and such, it's just that feeling of fraud. So we will see what the hearing aids actually do because I had a conversation this morning will one of my colleagues who is considerably older than me, so she had age related hearing loss when she had hearing aids she ended up giving them back because they didn't help with the bits she was struggling with like when somebody is across the desk from you wanting to talk because it didn't pick up that, it's behind so I can hear people behind me, so she gave them back. So, it will be interesting to see if they help or I actually feel I am better off without them." (Katherine, 35)

Katherine expressed that she felt like a fraud as she could still hear adequately despite being diagnosed with a hearing loss as she felt other PHL she interacted with were more eligible to be a part of that community, as they struggled more with their hearing. Thus, despite experiencing a sudden hearing

loss, it did not decrease her mental wellbeing as she had previous in-depth experience of dealing with other health conditions, and she could hear better compared to other PHL.

Hearing loss and Mental health conditions

Many people with hearing loss had diagnosed mental health conditions such as anxiety and depression before, or in addition to, the impacts of the hearing loss. These PHL were more likely to report that hearing loss was a further contributing factor for the decrease of their mental wellbeing.

"So, it has had a profound effect, and obviously has a profound effect on causing my depression, because, I feel that, if I wasn't deaf, and I wasn't having migraine problems, I wouldn't be the person I am today. I wouldn't probably be in the situation that I am today. And it, the depression I don't think would be, I'm not saying I wouldn't have depression because there are lots of things that can cause it, but I think it's been a very large contributing factor." (Bobby, 62).

As Bobby expressed, hearing loss had a profound effect on his mental wellbeing and was a significant factor contributing to his depression. He importantly outlined that he believed hearing loss to be a direct causal factor leading to his depression, and not simply an indirect source of distress. Mary also shared this sentiment stating her hearing loss was a causal factor in her depression:

"I'm struggling. And I found that I'm avoiding social occasions now. (Pause). Erm, I'll tell you; I had a bit of a breakdown after my son, (pause) died. I do take very low dosage antidepressants, just to keep my mood level. Not serious at all.

But it's something that I have to be aware of and I have to manage. I am prone to depression. And a lot of the time it's the hearing that's causing it." (Mary, 71)

Harriet also reflected on the impact hearing loss had on her mental wellbeing and its role in developing anxiety:

"Yes, hearing loss has had an impact and certainly, in terms of that whole life experiences which has probably led to why there's an underlying edge of experience, the anxiety I developed, yeah, the hearing loss has impacted that." (Harriet, 56)

For the majority of PHL impacted by mental health conditions, hearing loss was not the first factor causing their mental health issues. Despite this, PHL who already had mental health issues identified hearing loss as an additional factor that worsens their mental wellbeing. Analyses here indicate that when hearing loss was a comorbidity to a physical condition that was not related to hearing loss, hearing loss was seen as less significant with little no impacts on mental wellbeing. On the other hand, when hearing loss co-occured with mental health conditions, it was identified much more significantly as a causal factor in PHL's decreased mental wellbeing.

4.8.2. Autonomy

The third component of the CHAI model is Autonomy. Autonomy is defined as an individual's perceived level of control in their lives. PHL identified that their sense of autonomy was impacted when they felt restricted by their hearing loss, or if they had to rely on others to have successful interactions. Alex shared:

"I do feel like a bit of an outsider, like I can't function with people. Even at uni, I always sit right at the front, and have told my lecturers about my hearing loss, I

still miss the whole lecture and have to rely on my friends to tell me what was happening. I can't get things the first time, so I'd say yeah, it's difficult. Other people can see you as less sharp, and treat you that way, not all of them will." (Alex, 23)

Despite taking action to control his learning environment, Alex continued to be restricted by his hearing loss and had to rely on others with better hearing, to catch up on what he missed. This indicates that hearing loss can lower PHL autonomy when the restraints of hearing loss seem too difficult to accommodate for. Due to unsuccessful attempts of applying control, PHL expressed feelings of frustration and being seen as an outsider within their educational and social communities. Rachel also expressed:

"I don't go to the cinema anymore, don't go to the theatre again because I just couldn't hear, at home I use subtitles on the TV so I just stopped going to the pictures that was before I had my hearing aids even I used to like going to the theatre and things like that but it's a bit lost on me really but I do need to get into the loop my hearing aids have broken at the back so I need to get that sorted and perhaps try and see if that works for me a bit more I still try and do things and I think I still do but it causes me more anxiety." (Rachel, 56)

Some PHL identified that their sense of control decreased greatly due to their hearing loss in social, occupational, and educational settings. Bryan also reported a decreased sense of autonomy in his workplace stating:

"Yeah, I mean, to be honest, it, one of the drivers for me to come back and have some more hearing tests was my boss saying Look, it's getting to a point where

I, you perhaps ought to go and think about being checked again because I'm having an issue, like, speaking to you and you hearing me. So, it was kind of, to have my hearing being picked up by my employer and pressing me to go back was hard at the time because I still wanted to have a choice. I was encouraged to go back, not in a forceful way but in a, yeah, trying to be supportive type of way. It was still sort of debilitating." (Bryan, 42)

Bryan's account of being pushed to get his hearing tested despite being reluctant showed the extent to which hearing loss impacted his personal sense of control, even in his workplace. Wanting to choose for himself and deal with his hearing loss on his own terms became less of an option to avoid occupational conflict. Being told by his superiors that he should actively pursue some needed help with his hearing loss left the PHL feeling powerless as he could no longer apply his choice of waiting. This showcases that a PHL's autonomy could also be negatively impacted in the workplace due to their hearing loss. For this group of PHL, hearing loss is suspected to directly decrease functionality in everyday life, and lower their mental wellbeing through the daily frustrations, impairments, limitations, and restrictions caused.

4.8.2.1. Damage to Self-efficacy

Self-efficacy is the extent of a person's belief in their own ability to perform and achieve in life. Hearing loss was identified by the majority of PHL to have damaged their belief in their personal abilities to succeed in even minor tasks. Examples of these tasks are roles carried out in different life environments such as social, occupational, and personal settings.

"My own perception of how my ability might have changed because of it

(hearing loss). I don't, no one said to me, you know, you're rubbish, you can't do your job properly, because most of the time, you know, you pick up enough to get by, or stuff is done via email, or it's reinforced by email, so you kind of, fill in the gaps later, but it's just, I, I felt like I wasn't performing to the standard that I perhaps could." (Bryan, 42)

Bryan felt less capable and questioned his own job skills due to the restrictions caused by his hearing loss. Thus, hearing loss can lead PHL to question their ability to perform in everyday life. When asked what kind of things brought down his mental wellbeing, Bobby responded:

"Pressure, self-doubt, feeling incapable of doing even the simplest things, and self-worry. I think that would cover most things." (Bobby, 62)

The self-doubt caused by hearing loss could lead to decreased self-efficacy, which also increases the anxiousness PHL feel in their day to day lives as they are unsure of the extent of their abilities. Anxiousness and self-doubt experienced due to hearing loss directly led to low mental wellbeing in PHL.

4.8.2.2. Self-confidence

A mediating factor explaining the extent to which autonomy of PHL was impacted, was their feelings of self-confidence. Participants who reported losing their sense of autonomy also identified a significant decrease in their self-confidence. However, participants who saw no impact on their autonomy were more likely to pertain feelings of confidence.

Decreased Self-confidence

Participants who indicated that their hearing loss negatively changed their personality and perceived personal abilities, also reported becoming less confident. Peter expressed his lowered self-confidence:

"This is hard to say… I'm confident and not confident at the same time simply because of my hearing. Sometimes I'm not sure what I've heard so I think I'm not a confident person anymore. My hearing holds me back from being what I could be and what I can do, that's the way I feel about it." (Peter, 33)

Peter's quote expresses that he felt his hearing loss made him become less confident in social interactions despite normally being a confident person. He further indicated that consequently his hearing loss restricted his potential in life as it made him less capable, thus lowering his autonomy.

"Unless it's something that's important, I'll still kind of jump in, you know, but, if it's insignificant, you know, I don't think I'm jumping in as much as I used to. You think, oh, if you, if that's how they feel, then let them get on with it. I think. I think that's the way it is. You know. Yeah. But that's probably confidence, because again, Did I hear him quite right? Did he say what I thought he said? And that's the doubt. I think that's kind of the underlying doubt that you've got. So, you're going to say something, and everybody turn round to you, think, oh, what's he said that for? Because he didn't mean that, he didn't come over that way, but you've misinterpreted it. And I think that's, that's, that is a worry." (Carry, 66)

Carry, a retired company employee, also emphasised the adverse effect hearing loss had on his self-confidence in social situations. He became less confident and became more worrisome throughout his daily interactions. Thus,

the social embarrassment experienced by PHL after missing communication in social interactions can lead to a decreased sense of wellbeing.

"So, yeah, when my hearing impacted my job, that was, that was undermining my confidence a little bit and also making me feel a little bit … like, I was not as, performing as well as I used to." (Bryan, 42)

It's evident that for some PHL decreased self-confidence led to a decreased sense of capability, impacting their self-image. These negative perceptions in PHL evidently made them feel unhappy with themselves and their self-portrayal. This unhappiness with self, and anxiousness regarding their disability could be a further root to decreased mental wellbeing.

Hearing Devices: continuing/re-establishing self-confidence

The impact of hearing loss seemed to be less for PHL that maintained a sense of self-confidence. PHL who used and were satisfied with hearing devices reported feeling confident and functioning well in most aspects of life regardless of their hearing loss. Gerry for example directly associated his ongoing confidence and subsequent improvement in mental wellbeing to his hearing aids:

"I'd say my mental wellbeing was enhanced by me getting my hearing aids because of the amazing technology I received, and that's the only way I can actually explain it, the positive side of receiving this because I was able to develop these coping mechanisms very easy ones by turning the television up and by telling people that I needed to sit this side so I could hear which they have either accommodated or I couldn't listen to them erm just simple things

like that, then I was given a hearing aid on the national health service what a fabulous country. I got the hearing aid and the experience when I walked out of the building was truly amazing it was a gift. I went home and the first thing I put on because I like classical music, I put on classical music the very first bit that introduced me to classical music when I was 11, and I cried because I could hear every single bit of it that over the years, I was slowly missing I just wanted to cry, it was beautiful. I listen to all of it now, all the classical music." (Gerry, 47)

Evidently, Gerry, experienced an instant positive impact of adopting a hearing aid. He heard sounds he had missed for years, such as birds chirping and notes in classical music. Regaining the ability to hear these sounds, was an emotional experience, which indicates the extent to which hearing loss can limit PHL in everyday life. This also reflects the potential benefits of adopting hearing aids. The quote above indicates that adopting a hearing aid, that works well for a PHL, can aid PHL when struggling with the impairments caused by hearing loss. It could also act as a primary tool that aids in PHL developing coping mechanisms to manage hearing loss.

A common factor found in PHL pleased with their hearing device, was their improved sense of control in managing the side-effects of hearing loss. Gerry explained his self-confidence was an important factor that helped him manage his hearing loss:

"Yes, I think my personality, the confidence has helped me manage, not that it was instilled in me but again my mum she always kind of told me you can be whatever you want to be, it was that, as long as you're happy doing it she said that's fine." (Gerry, 47)

Thus, PHL who reported greater levels of self-confidence indicated better coping with hearing loss also.

Mathew also shared that his ability to work efficiently, maintain relationships, and live everyday life was reduced immensely before his cochlear implant:

"I couldn't hear. At work I can't use the phone. Really could not use the phone. I realised it wasn't (his hearing) … it wasn't as good as it could be. … I realised the impact it was having on my life; you see. Things I wanted to do but couldn't. Professionally, I certainly realised, it pushed me back down the ladder, so, even if somebody turned round and sent me a, did you ever want to become a partner in the firm, erm … I wouldn't say I lied to them, but I wouldn't tell them what I really felt because I didn't think I could do it, and I didn't think they'd believe I could do it. So, I spent a lot of time suppressing a lot of these sorts of thoughts. …… And I knew it, it, it was making me feel rather unhappy. I knew it was holding me back. I knew it was holding me back in relationship terms, I'm good at meeting new people……I realised that was becoming harder and harder. I had one or two experiences where … you know, a relationship finished, you know, somebody said something, and it's, not just a case of feeling a bit put down, but almost like a devil around me, sort of, situation. Trying to pick myself up from that. But, really, really hard. I always felt like I was doing it on my own, you see. So that's made me very cautious, it made me very cautious over that period of, sort of, talking, may have been about fifteen years, up until about two, three years ago. I had to do it just to prove to myself I could still do these things, despite my hearing loss. (Mathew, 47)

Mathew expressed that his self-confidence decreased in his life and actively acted as a barrier against work promotions and maintaining romantic relationships. He became more cautious and restrained, which worsened over the period of 15 years. Due to the accumulation of these negative impacts over time, he became motivated enough to undergo a cochlear implant operation. Mathew discussed the significant change getting a cochlear implant had on his life, work, confidence, and mental wellbeing:

"It's like, it felt to me very much like having a bionic ear. Fairly soon after my switch-on … I actually felt my energy levels lifted enormously. To stop and ask them to repeat things. And even if somebody saying something … in the conversation, my brain is responding instantly instead of having to work out what, and then it's just too late, you know, you've lost it. Such a real stimulant. My life has completely changed. So, I'm working my way through all this …… erm health and wellness thing. So, to me, it's a very rounded things, it's not just one, oh, I can hear now, I'm feeling better. I'm not. It's a lot more to it, I just realised, there's so many bits in this little chart that… instead of just sitting back, in the workplace, feeling a bit more confident in dealing with clients, talking to staff, erm … just … meeting people out and about. Not holding back from saying something because you, they might answer something back, you know, it's like, I just get on with it now. Doesn't matter who it is. Having the conversation with other people, realising I'm having a conversation with them, instead of them not talking to me. So that happens a lot now. Didn't want to hear my opinion on things before, I just, he hasn't got anything to say, but it's not, that was never the case, I just didn't know what they were talking about."

(Mathew, 57)

Mathew experienced very positive changes after his cochlear implant. He reported becoming more confident in his life, and leading interactions with others, whereas before he was often side-lined. He also reported feeling more energetic, as he could hear better without great effort, which led to decreased cognitive exhaustion. This indicates the important role hearing plays in everyday life for achieving strong self-affirmation through various roles at work, home, in social groups, relationships, and maintaining overall autonomy.

With the aid of hearing devices (hearing aids, cochlear implants), participants-maintained confidence and autonomy, and were the group least impacted by their hearing loss. They indicated high functioning in everyday life despite their hearing impairment as it became manageable through their hearing device. Therefore, the mental wellbeing of this group was not impacted by their hearing loss after successfully handling their hearing loss.

4.8.3. Identity Shift

Identity Shift is the fourth component of the CHAI model. The identity shift reflects the process by which hearing loss changed PHL's sense of identity, either positively or negatively. For some individuals who had acquired hearing loss later in life, their perceived identity evolved into a new one, to reflect the impacts of hearing loss. They indicated that their hearing loss altered their self-image that existed before and changed their existing personality. This phenomenon commonly occurred in individuals with a later onset of hearing loss. Mary expressed a dislike of her new hearing loss identity:

"I know I'm assertive, but I know how it (hearing loss) has affected me mentally. I've actually found my personality changing. Now I'm not proud to admit this, but I'd be the one dancing on the table. But I can't hear now. I'm struggling. And I found that I'm avoiding social occasions now. I just don't like it." (Mary, 71)

Mary's identity shift, from being extroverted and outgoing to quiet, and even avoiding social situations, had a negative effect on her mental wellbeing. She disliked these changes as they did not reflect her 'true' personality and existing identity that she associated with. Bobby expressed a very similar identity shift due to his hearing loss:

"I mean, my personality, I was the life and soul of the party, I'm the person that gets everything going. But, in reality, now I'm the wallflower, I'm the guy that's stood in the corner, because it's not that I don't want to take part, I don't feel like I can take part." (Bobby, 62)

This identity shift negatively impacted PHL in the younger population also:

"If you're a quiet person anyway very reserved, chilled with a handful of people and always sit together and talk then I think it isn't as bad. I think it (hearing loss) knocks people that are more interactive because people notice it a lot more and it takes a lot from them. That's what happened with me, I used to be a troublemaker, now I just nod and pretend to know what's going on." (Alex, 23)

Alex's quote reflects the change of identity characteristics he experienced due to hearing loss. He theorised that PHL who were more interactive were more likely to be negatively impacted by the social and interactional restrictions experienced due to hearing loss. This theory was further reinforced by Rachel:

"It is about being able to communicate with people I think and I'm not that kind of person but if you are a fairly quiet person that didn't live your life like I did, it probably wouldn't affect you so much because you are quite happy not to interact with people but for me I like people and that's what I have always been like so to have that made more difficult is huge yes and tiring, its tiring and even when you tell people which I am going to have to do its quite tiring as well getting them to understand." (Rachel, 56)

Rachel expressed that the change in her identity is tiring to constantly manage her hearing loss in social situations. She indicated that she disliked continually needing to disclose that she has a hearing loss in these interactions. This may indicate her reluctance to accepting her hearing loss identity or shows her fear of being stigmatised against.

The unwanted change in identity after developing hearing loss led some PHL to feel as if they had lost prime characteristics of who they were which would never be regained again. The mental wellbeing of participants who struggle with their identity shifting from normal hearing to PHL is impacted negatively as they struggle to come to terms with the difficulties of hearing loss.

Personalities changing from being socially active to inactive are indicators of social withdrawal and/ or isolation which decrease the sense of mental wellbeing in PHL and can evolve into mental health issues such as depression.

4.8.3.1. Constant comparisons of abilities: Before vs. After

The act of constantly comparing what life was like before and after developing a hearing loss acted as a reminder for some PHL of what hearing loss had cost

them. Ruminating on the losses caused by hearing loss led some PHL to experience feelings of loss and deprivation of abilities.

"I think, if you miss out, if you compare what it was in the good days, when you could pick up things, and you can't completely hear it all now, then you start to think to yourself "Ugh. I'm annoyed. I'm fed up. It's not fair. It's not like it used to be.". And I'm sure if you dwelled on it for a long period of time, you'll start to feel as though life isn't fair. And think, "Why me? Why should I not be able to hear?", and you could fall into that. Because you're comparing what you used to be like and what's happening with you now. And it creeps on slowly that one day you sit down and realise, "I never used to do that!", and you'd remember what you used to do, and how things were, and now things are worse." (Dan, 72)

Regularly being reminded of the constraints of hearing loss, and what was lost because of it, evidently created feelings of low mental wellbeing in PHL as they now classified themselves as disabled. The constant dwelling on abilities and personal characteristics lost to hearing loss deeply intensified feelings of low mental wellbeing for some PHL.

4.8.3.2. Identity conflict

The hearing loss imposed a conflict for some PHL, as it prevented them from being the individual's they were and instead made them recurrently feel like outcasts within collective groups. These perceptions conflicted with their identities, as they are viewed themselves as "normal" individuals that just had some hearing loss. Grace discussed her identity conflict due to hearing loss:

"Like, you're angry that you are partially deaf, or you are ill, like, you're angry at everything. And you just want to be normal I think you know? It's just trying to accept who you are. I think you've got your own in your personality. But you've

also got this part, the people are their own individual, and the hearing loss that's what's conflicting, it's your own self, and then your problems which you've got, which is just affecting that." (Grace, 25)

This shows that feelings of anger can be associated with hearing loss when an individual experiences an identity conflict and is struggling to accept their new hearing loss identity. It is important to note that Grace's experience of hearing loss occurred since the age of 4 years, and despite having 21 years to come to terms with her identity, she still experienced great difficulty to do so.

Grace also linked her hearing loss with a low self-esteem due to the identity conflict it caused her:

"Yeah. You just miss that. I think being partially deaf, sometimes you just miss the conversation, obviously, like I say, I'm on working things, and trying to come to terms with it. I didn't want to miss conversations or anything. So, it is important to have hearing aids, but when your self-esteem's not great, it's one of those. I'd use them less because I didn't want to be seen as deaf. You're always conflicted (pause). So, I think you're always conflicted so." (Grace, 25)

Grace expressed that she felt conflict between needing to use hearing aids, and not wanting to do so due to her lowered self-esteem and feeling uneasy towards her hearing loss formed identity. This showcases the impact an identity conflict can have on the adoption and use of hearing aids. If PHL dislike being associated with their hearing loss they're less likely to use devices which make this more visually apparent. Negative feelings stemming from hearing loss such as anger and frustration are suggested to decrease the mental wellbeing of PHL.

Fuelling the identity conflict was PHL's need for identity preservation, i.e., preserving their own identity before hearing loss, and maintaining key aspects of their characteristics. Alex maintained that he was the same individual before and after the hearing loss to others:

"I'm still me, but you just have to talk up." (Alex, 23)

Xavier expressed a struggle in his self-image due to his new identity as it compromised his sense of identity-preservation:

"Your self-image is you as eighteen. But this, all this stuff breaks it, doesn't it? It just stops it from being true. You look at yourself, think, well, clearly I'm not eighteen, I've got glasses and a hearing aid which is a part of the reluctance to accept it" (Xavier, 40)

Xavier's reluctance to accept his hearing loss was due to preserving his preferred self-image of how he viewed himself. Evidently struggling to accept hearing loss is one of the main causes for the identity conflict. Grace explained identity-preservation as one of the main reasons she chose to sometimes hide her hearing loss:

"Because you know when you tell people you're partially Deaf they change how they talk to. They kind of dumb down to you, or they approach you differently. You know, it's like on the phone, if you ring somebody, you know, I spoke to them before they'll be fine, but then I tell them I'm a partially deaf they'll change how they are." (Grace, 25)

Those successful in preserving what they judged as central elements of their identity displayed better mental wellbeing compared to PHL that felt they had lost core parts of their identity due to the restraints caused by hearing loss. Being unable to preserve their identities lead many PHL to feel that they had no control over the formation of their own identity, which negatively impacted their sense of self and mental wellbeing.

4.8.3.3. Masculinity: "Mentally I have written off part of my manhood…"

Hearing loss impacted the identity of some PHL in core ways. Male PHL particularly reported that their hearing loss negatively impacted how they viewed themselves. For a couple of males, hearing loss made them feel less manly, or was a contributing factor for feeling that they lost a central aspect of their masculine identity. Bryan discussed this saying:

"It's almost saying you know, I'm not perhaps as … as well or as virile as I once was. I'm no longer twenty-four and as physically fit as I used to be and, I don't know, maybe it's a male thing, I have no idea, but I just felt like it almost, it's saying. Oh yeah, I'm not as fit and as virile as I used to be." (Bryan, 42)

Bryan associated his physical capabilities with his masculinity. For Bryan hearing loss impacted his view of his own manhood as he now perceived himself as less able, less manly, and less virile. Bobby also expressed this sentiment to a deep degree:

"Since my hearing went, I became depressed and suffered from erectile dysfunction. I believe had previous marital problems and think how my hearing impacted me played a part. Now my problems are worse. Sex is painful if I do manage an erection. And if on the rare times I can get to orgasm there is no

enjoyment. This impacts on my relationship with my partner as I feel inadequate. I don't feel that I can talk to my doctors about this. Also, mentally I have written off part of my manhood at 62." (Bobby, 62)

Bobby shared that his hearing loss had negatively impacted his sense of manhood, and sexual capabilities as a male. He associated his erectile dysfunction with his hearing loss. This shows the extent to which hearing loss can negatively impact some individuals, even in their intimate experiences.

Physical ability and sexual identity are central elements to the formation of the masculinity identity. Hearing loss was identified as a direct factor compromising some PHL's perceptions of their capabilities and identity. This led to some PHL's overall identity being negatively altered. In short, hearing loss caused conflicts in the perceived identity of many PHL, and this subsequently decreased their mental wellbeing.

4.8.4. Coping Threshold

Coping threshold is the first component of the CHAI grounded theory. Early in the interviewing process, numerous participants identified that their mental wellbeing was a fluctuating construct that increased, decreased, or stayed stable based on the difficulties they were presently experiencing in their daily lives. Thus, the novel concept of a 'coping threshold' was formed at the start of this study, to explain this phenomenon participants referred to. A coping threshold can be defined as an individual's personalised capacity to endure and deal with distressing life situations. It is shaped by an individual's personality, context, and previous experiences which could have influenced how an individual deals with stress.

The coping threshold acts as a mechanism which controls the fluctuations occurring in mental wellbeing of PHL. All other components of the CHAI model (*Coping Styles, Hearing Loss, Autonomy, and Identity Shift*) can negatively impact the coping threshold leading to decreased mental wellbeing. For example, if a PHL feels they have decreased control over their life (lack of autonomy) this then can exhaust their coping threshold and lead to decreased mental wellbeing. However, if an individual perceives no impact to their sense of autonomy, the coping threshold remains stable and mental wellbeing is not impacted by hearing loss.

Participants expressed that everyday life contains very difficult circumstances that can cause a fluctuation in their coping threshold and overall mental wellbeing. Amelia, a 24-year-old student expressed:

"Being okay can change every day for me. If I'm stressed or I've got my exams coming up I get anxious and can start to stop doing the things I like. I think being able to cope with these situations and just trying to be as stable and happy as much as possible and accepting the ups and downs is the best way to cope." (Amelia 24)

Bryan, a town planner, also related mental wellbeing with the ability to cope in everyday life, which fluctuated based on the life pressures he was experiencing:

"… Struggling to cope with pressures from life, you see that, actually, it's quite harmful and it's very difficult and you can see the impact that it has not just on a person, but their family. But, as I say, I look at myself and I realise that I've been fortunate enough not to go through too many of those sorts of experiences. And I realise there's nothing to stop that happening more in the

future, you know, all it takes is a bit of pressure at a point where you might have something else happening and, and you can break. So, for me, how my mental wellbeing is depends on just feeling like I have the ability to cope, when there's nothing that's, you know, taking over your life, there's just, you're completely focused, and sometimes you can switch off and sort of deal with other things."

(Bryan, 42)

Valerie, a retired HR employee also expressed a similar outlook whilst outlining feeling overwhelmed and her coping threshold exhausting if she's experiencing a number of pressures at the same time:

"All it takes, is being under too much pressure for too long, or like I say, one or two issues combining at the same time, and before you know it, you know, you've, my wellbeing can come right down." (Valerie, 60)

Mary also likened her mental wellbeing to a state of equilibrium, where she was able to accept the ups and down of life and ultimately cope well:

"Accepting, life, its light and shade, we all have traumas in our life (pause)… I'd like to use the word equilibrium." (Mary, 71)

Thus, in the CHAI theory the coping threshold takes the form of a thermometer, to represent the fluctuation of mental wellbeing, up and down based on the absence or overwhelming presence of distress. The coping threshold is therefore the fundamental component of the CHAI model as it is the mechanism through which the mental wellbeing of people with hearing loss becomes impacted. Thus, the subsequent four components of the CHAI model impact on mental wellbeing are mediated by the coping threshold.

4.8.4.1. Impact of hearing loss on coping threshold

Hearing loss was a predominant factor that impacted the coping threshold. Hearing loss was highlighted as a significant factor for some participants that lead their coping threshold to become exhausted. For many, hearing loss was the 'final straw' that led some individuals to experience decreased mental wellbeing:

"I am prone to depression. And a lot of the time it's the hearing that's causing it I think if my mood is a little bit down, or something's happened, it's sort of the final straw, or it sought of exacerbates it. I think, you know, "This is the final straw, this is! Now I can't hear." And I know it isn't. (Pause) But you know, it's something else I can do without coping with. Life isn't easy." (Mary, 71)

Mary stated that an accumulation of experiencing difficulties in everyday life, dealing with her depression, and in addition experiencing the recurring restrictions caused by hearing loss led her coping threshold to become exhausted and her feeling overwhelmed. Thus, hearing loss has directly been attributed as a causal factor that can exhaust the coping threshold and decrease mental wellbeing.

Figure 4.6. was developed from the analysis to explain the role the coping threshold plays particularly in relation to hearing loss and mental wellbeing. It explains that, if a PHL is experiencing distressing life situations, and have continued hearing difficulties, accumulating feelings of frustration, distress or overwhelmed, their coping threshold can become exhausted. This then can directly lead their mental wellbeing levels decreasing.

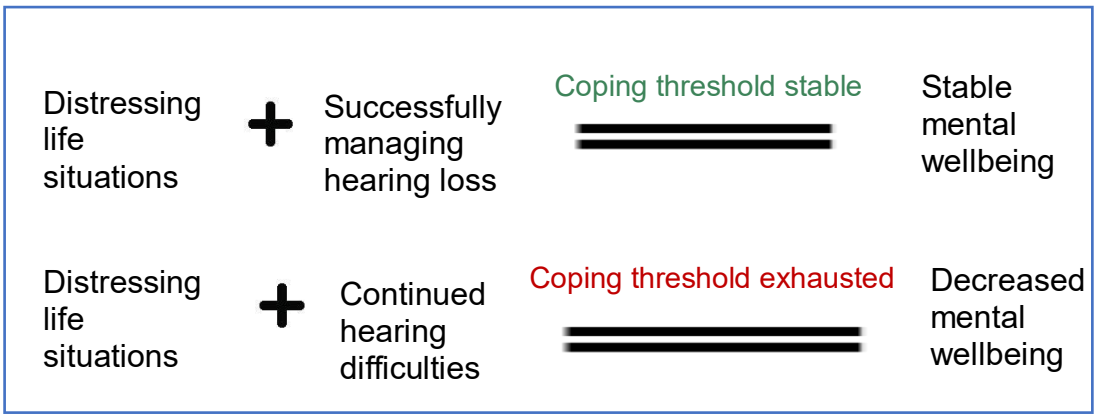


Figure 4.6. Explaining the coping threshold

On the other hand, if a PHL was experiencing distressing life situations such as work stressors, but was successfully managing their hearing loss, through using hearing devices, or coping strategies, then in this situation hearing loss does not act as a source of distress. Gerry, 47 reiterates this by explaining:

"I'd say my mental wellbeing was enhanced by me getting my hearing aids because of the amazing technology I received, and that's the only way I can actually explain it, the positive side of receiving this because I was able to develop these coping mechanisms very easy ones by turning the television up and by telling people that I needed to sit this side so I could hear which they have either accommodated or I couldn't listen to them erm just simple things like that, then I was given a hearing aid on the national health service what a."

(Gerry, 47).

Thus, the coping threshold remains stable for these PHL and subsequently their mental wellbeing is not impacted. Overall, a stable coping threshold was implied to be associated with effective self-management of hearing loss, which aided in preventing hearing loss from decreasing levels of mental wellbeing.

4.8.5. Coping Styles

Coping styles is the fifth and final theoretical category in CHAI grounded theory model, which explains the relationship between hearing loss and mental wellbeing. A coping style represents the main behavioural patterns an individual performs whilst living with distressing situations (Beutler, Harwood, Kimpara, Verdirame, & Blau, 2011; Malkoç, 2011), and they can be either positive or negative (Booth & Williams, 2015; Wang & Sheng, 2022).

The grounded theory analysis in this study identified seven different types of coping style representing how participants were dealing with their hearing loss. Three coping style types were positive (Proactive coping, Acceptance coping, & Supported coping) in which the coping styles aided an individual in their journey of living with hearing loss or made the experience less distressing. Four negative coping style were identified which hindered the overall coping of participants in some way whilst living with hearing loss, or negatively impacted them (Inconsistent coping, Passive coping, Denial coping, Survival coping). The type of coping style adopted was found to influence the PHL's overall reported experiences of coping with hearing loss, and their subsequent state of mental wellbeing.

4.8.5.1. Proactive coping

Proactive coping is a coping tyle that a number of participants displayed. It's defined by a person with hearing loss actively taking steps to deal with their hearing loss and take the required or possible steps available to deal with their hearing loss. These individuals were more likely to access health services and have consultations regarding their hearing loss. They were also more likely to adopt a listening device and persevere with it, trying to get used to it, and also

using it as regularly as possible to overcome hearing loss restrictions. Mark, a retired teacher, displayed elements of proactive coping:

"It's (hearing loss) had an effect on mental wellbeing. And that effect has led me to go and get a hearing aid. So, I wouldn't say it's had no impact on me. But it's an effect that, you know, by taking action, I can overcome and mitigate it. Now, there's still residual effects after that, the hearing aid isn't going to fix everything, it may continue to get worse, but, you know, just by engaging in, in having the tests and, and speaking to people in the medical profession, I now feel in a position where, yes, I've got some of my hearing loss back, and that, if things continue to deteriorate in the future, there may be other things that can be done. It will never fully compensate for the loss that I've had." (Mark, 67)

As demonstrated in Mark's quote, despite clearly expressing that hearing loss directly influenced his mental wellbeing, he expressed that the optimal way of coping would be to accept hearing loss as a chronic condition. Importantly he emphasised the importance of taking action to lessen the restrictions hearing loss causes and being proactive in pursuing options provided by health services to enable an improved rehabilitative journey.

Patricia, a retired schoolteacher shared a similar sentiment on the importance of proactively coping with hearing loss.

"You need to pursue the technology; try all the options you have until you find the one that works for you and keep at it. I have no problem with the hearing aid, if you didn't have a leg, you'd screw one on. No problem with that, because it's necessary." (Patricia, 76)

Those displaying characteristics of the proactive coping style were more likely to report stable mental wellbeing, where they felt they were overcoming their hearing loss restrictions positively and that living with the condition was under control. Thus, hearing loss for this group did not have a negative impact on mental wellbeing.

4.8.5.2. Acceptance coping

Acceptance coping is defined as the coping style in which a person with hearing loss accepted their chronic condition, including all negative impacts and restrictions it pertained on their lives. PHL adopting this coping style became at peace with living with hearing loss, by recognising its existence and impact but also that some other illnesses, health conditions, or diseases can be a lot more life-altering than hearing loss. Gerry, an advanced nurse practitioner expressed accepting his hearing loss stating:

"When I was told it was a chronic condition that there wasn't a cure as such for, I was fine with the information I was given, and accepted I had a hearing loss, because it was something I started to notice before anyway. I had the opportunity to ask the questions that I wanted to ask which were 'well what if it gets worse' would it be a continuation with the hearing aid and yes it will be I said well that's fine then. I even thought about if I'd been younger erm but no I'd still have them. My profession does have a lot to do with it probably because I deal with patients who are going through massive changes in body image that are having operations and need psychological help and nurses are the first line in getting them to deal with whatever dressings they are going to have to do for the rest of their lives, so this is nothing compared to that, what some of my patients have to go through." (Gerry, 47)

It's evident that Gerry was influenced by his profession, and the available comparisons between himself and other patients he's treated and feeling that restrictions of hearing loss can't compare with the life-altering impacts of other conditions. Interestingly he states that his hearing loss being gradual, and that he started to notice it before the diagnosis, made the process easier for him to deal with it as he had already started to come to terms with it. The importance of accepting hearing loss to cope with it better in daily life is also reiterated by Carry:

"But I think it's probably a bit naïve to expect that you can, I mean, as you get older, you do have to accept, I mean, my hearing would have deteriorated anyway, so it might just have happened a bit quicker." (Carry, 66)

Accepting hearing loss was identified as a crucial step in a PHL's rehabilitation journey in coping with their hearing loss. A quote by Mark, an accountant, illustrates this saying:

"I've accepted my profound hearing loss from a very young age and lived with it for so long. I suppose it was, my attitude was just, get on with things, get on with life. I had my own ambitions, things I wanted to do, professionally, certainly. I qualified, worked with some good firms. I haven't achieved what I think I could have achieved with better support and better hearing, but … erm … I've probably punched above my weight a little bit. … It's that determination, individuality, independence has always been there." (Mathew, 57)

Acceptance was associated with the practical management of hearing loss, through seeking support and effectively self-managing condition. Therefore,

acceptance of hearing loss may be a crucial component for dealing with hearing loss effectively and avoiding negative impact on PHL's mental wellbeing.

4.8.5.3. Supported coping

Supported coping, the final positive coping style identified, refers to the coping style of people with hearing loss that is supported by external entities and/or individuals. Unlike the previous two coping styles that relied heavily on the PHL themselves taking most of the action whilst dealing with hearing loss, supported coping occurs when a PHL heavily involves others such as their friends, families, colleagues, i.e., communication partners. Supported coping occurs when PHL are significantly influenced CP to adopt certain health behaviours relating to hearing loss such as embracing hearing devices, acquiring communication tactics, or attending hearing loss support groups. Grace, a young PHL stated:

> *"I think, myself, what helps me cope with my hearing (loss) is just talking to people. Talking to friends or family. And, and, you know, my parents are supportive, so I can actually talk to them, and they'll tell me to go and book a check-up, or go to the hearing group support, just that nudge. So, it's hard for people who haven't got a support system. But it's just finding the right thing, because once you have that support things, it just changes everything for the better." (Grace, 25)*

The availability of support allows PHL in this group to better deal with hearing loss after receiving and being reinforced by motivational and/or informative hearing-loss related advice. Individuals in this group are also more likely to persevere with dealing with hearing loss based on the advice of communication partners:

"I can get very grumpy about my hearing (loss). Sometimes I feel stupid in social events where people are sitting around something like a big table because I either mishear or don't hear at all. But the mises saw it and now drags me along to things so I don't become homebound. Without her I probably would be by now. But to be honest I don't feel as stupid anymore the more I go type of thing." (Tim, 79)

Mark also identified his wife as an individual who motivated him to seek the support of audiology services, adopt a hearing aid and persevere with it, indicating she had a large influence on how he's coped with hearing loss: "*As it (hearing loss) went on it became more obvious that I was missing things.*

The wife would repeat things you know things and it would irritate her a little bit. So, she was the one who told to get my hearing checked, I probably wouldn't have otherwise. She still reminds me to take out my hearing aids before I shower or go sleep and put them on in the morning. Now what I do find is my wife complains she can't mutter about me behind me now so (laughs)." (Mark, 67)

Overall, through the support of others, some PHL are aided in their rehabilitative journey with hearing loss, to perform and persist with useful hearing loss coping mechanisms. This continued support was also associated with stable mental wellbeing, as PHL felt they were adequately coping with their hearing loss and thus is had little or no impact on their mental wellbeing.

4.8.5.4. Inconsistent coping

Inconsistent coping is the first of four negative coping style identified that impeded a participant hearing loss rehabilitative journey or were associated

negative after-effects on PHL. This coping style occurs when a person with hearing loss, experiences restrictions due to hearing loss and makes some attempts to cope with their condition, however become inconsistent with their chosen rehabilitative method(s). This commonly occurred in the form of some PHL receiving hearing aids from audiological health services however become 'put them in the drawer' and hardly use them or use them irregularly at sparce and inconsistent intervals. Lenny is a PHL that expressed he was inconsistent with coping with his hearing loss, because he couldn't use his hearing aids regularly:

"oh yes I had a few ear problems I used to wear ordinary swimming plugs but they were rubbish you know so when I had the hearing aids and they kept saying don't wear them all the time keep taking them out you know but I had trouble with words if they said d and b I said what odd words like and they are all saying what's the matter with you, I said I can't get it you know. I'm still as bad with the hearing aids in to be quite honest I don't know why I don't wear them regularly… maybe because I get these infections and I can't understand it I just wish somebody would say well you are allergic to the latex thing or whatever, but I don't know." (Lenny, 77)

Some participants also expressed regret at applying an inconsistent coping style and the need to cope with hearing loss more proactively, improve their rehabilitative journey, and lessen the restrictions of hearing loss. Rachel regretfully shared:

"I've made life quite difficult for myself because this has been going on for if we say 16 years. Ok for 5 years I've had hearing aids but because I've chosen not to tell people and now it's getting worse, and I'm needing to wear them all the

time it's almost like I can see it would have been easier to persevere and get used it them straight away, and that's kind of a problem of my own making and I realise that, it's just how I deal with that really. I think I am coming to that now Rachel you need to stop being so silly." (Rachel, 56)

4.8.5.5. Passive coping

Passive coping is a coping style that several PHL seemed to adopt during this study. This coping style is characterised by a PHL experiencing impactful hearing loss difficulties, which negatively affects their lives, and yet choose to live with their chronic condition passively and take little/no action to tackle participation and communication restrictions. An illustrative example of passive coping by Bobby, a store employee:

"At the time, it was, it was just like I've lost my hearing, and I just thought, okay, there's nothing they can do about it, I've got to live with it, and there you are. But then, obviously, it has the impact on your life. And then, it's only if something happens, but at, I mean, if you think about it logically, thirty-five years is most of my life I've lived with it, and obviously, things have got worse because nothing happened nothing changed in that time. I should've kept going back to my GP and try to get answers." (Bobby, 62)

This quote indicates that despite clear negative impacts of hearing loss on a PHL's mental wellbeing, a pessimistic outlook, or feeling that the audiological services available and hearing aids won't make a difference or improve hearing, discouraged participants from taking action. Bobby's quote also introduces an important association between passive coping and regret, as many PHL that took a more inactive approach when dealing with their hearing loss, were more likely to express regret in taking this approach after some time.

In Bobby's case 35 years passed since the onset of his hearing loss at age 26, without returning to audiological services. This loss of time had a lingering impact on him, as he felt that his life and struggles relating to hearing loss could have been different, better, and he exhibited signs of self-blame for being passive and missing out on potential audiological rehabilitative opportunities. The regret emanated from a PHL realising that their hearing loss may have worsened over time, which could have been decreased or avoided by taking available rehabilitative action. Roy, a retired machinery builder stated a similar experience of passive coping:

"The mental state of the person does play a role because, because I would be sitting around doing nothing, the mind's always searching for things that, that makes you either depressed or happy. Sitting around definitely made things worse. "(Roy, 58).

Roy explained that being in a more depressive mental state in general caused him to become passive and actively do nothing regarding his hearing loss. Roy also expressed regret at being inactive as this passive approach decreased his overall mental wellbeing for some time. The passive coping style was associated with negative outcomes such as regret, missing out, facing increased hearing loss difficulties in everyday life, indicating a negative impact on both hearing loss and mental wellbeing.

4.8.5.6. Denial coping

Some participants shared that they ignored or downplayed the impacts of hearing loss on their daily lives to cope, predominantly at the beginning of their hearing loss diagnosis. Participants that did this engaged in denial coping, a coping style associated with denying the existence or magnitude of hearing

loss, to avoid the devastating implications of living with a hearing loss. On why it took so long for her to use hearing aids Jenevieve expressed the difficulty of accepting a hearing loss diagnosis at the young age of 40:

"I suppose, the younger you are, probably, the more you don't accept them (hearing aids). I think I didn't want to look ninety when I was forty. I couldn't accept that I had it that young. [Sighs] Vanity. Sheer and utter vanity. [laughter] I didn't want anybody knowing I have a hearing loss or seeing my hearing aids. And I still don't. Forty years later. That's why the hair's here (hair covers ears). [laughter]" (Jenevieve, 83)

Some PHL struggle severely to accept their hearing loss and others were reluctant in acknowledging having hearing loss at all, as they were influenced by their negative perceptions of other individuals with hearing loss/ hearing aids they had encountered before their own diagnosis. Leanne recalled memories of from her childhood whilst explaining how she became in denial of her own hearing loss, she shared:

"It was hard coming to terms that a had a hearing problem at all. So, when my husband would say go and get your hearing checked, I would just say that my hearing was good and blame him for not speaking loud enough or talking whilst the kettle was on. I did know that I had a problem though, especially with the grandkids. I think it was after seeing my own grandmother with a hearing aid, I didn't like the idea at all. I put it off for a long time my paternal grandmother was deaf all the time I knew her because she was an old lady by the time I was born and I can remember sitting round the tea table and having to shout at her a, and she'd have this ginormous, ugly hearing aid, which we used to make fun of. So,

I wasn't happy about it obviously, but I was getting older, and I know things start to fall apart a bit and then I became a grandmother myself and I love it! I went to the hearing appointment really to hear my grandkids and keep my bond with them. Now it's much better." (Leanne, 79)

Leanne stated that her negative perceptions of hearing loss started with her grandmother who had a hearing loss and hearing aid, led to her initially being in denial of her own hearing loss, as she didn't want to be like her grandmother. However, becoming a grandmother herself led her to realise the importance of taking steps to adjust to her hearing loss. Leanne managed to accept her hearing loss to maintain her prized relationships with her grandkids. This shows that despite the denial coping style being the default way of coping for many PHL still coming to terms with their hearing loss, their coping style can still change to a more positive one, once accepted.

Quotes indicating denial coping suggests that PHL rejecting their hearing loss can become problematic in the process of coping with hearing loss. Accepting the hearing loss can act as a crucial first step to hearing rehabilitation, as seen with the case of Leanne, and reluctant case of Jenevieve. Accepting that there is a hearing loss problem would then facilitate taking the required steps to access relevant audiological services and self-manage the condition.

4.8.5.7. Survival coping

Participants that were struggling the most with their mental health, and life difficulties, expressed that how they coped with their hearing loss and subsequent life issues, was by trying to survive one day at a time. This led to the creation of the survival coping style, which represents some PHL who simply aim to function well enough to get through each day. These individuals

expressed that for them, some difficult life circumstances inhibited yearning for more, but they realised their aim couldn't be improved quality of life, but a continuation of life in general.

"Well, hearing loss makes me feel sad. It makes me feel …… a bit on the useless side sometimes. That I'm not functioning as everybody else is. On some days I think, I just need to get through now, and tomorrow is another day. But then I remember that it's not the day I want. It's not a day where I can talk to my kids in cafe, enjoy music, theatre, or dance. It's another day of surviving until there's some new invention that can help my hearing" (Clare, 65).

This powerful quote by Clare indicates the magnitude of which her sudden hearing loss altered her life. Her hearing loss was identified as a causal factor for leading to decreased mental wellbeing and feeling sad a lot of the time and being less functioning in everyday life compared to others. The restrictions caused by her hearing loss, not being able to enjoy her life as she did before, or engage in the same in-depth personal conversations, left her life feeling negatively changed. She expressed that overall, due to the restrictions caused by her hearing loss, she had less to look forward to in her daily life. Experiencing survival coping thus related to diminished participation, enjoyment of life and perceived quality of life, reflecting decreased mental wellbeing.

A quote by Bobby contains another example of survival coping:

"I obviously would like to go to them more, (American football games more- his passion), but the problem is, back into the reality loop, I have to work, to afford, to go. Don't work, I can't go. So, it's that Catch 22, the loop. And you're back

into it. So, I have the TV right and my partner recorded it for me, right? Haven't watched a single one. I've got to the stage now where I, with my migraines, I just sort of, cannot do things I that brought me joy anymore. Not because I don't want to, but because I'm having a problem with my migraines and hearing. So, a lot of my free time I just, basically, all's I want to do is cover my right eye up and cover my right ear up. So, I can't hear or see anything. To be just get through like that. So, there you are. I'm a lost cause." (Bobby, 62)

For many, if not all PHL, being unable to engage in their preferred passions or hobbies, was suggested to create negative emotions, feeling they were missing out on life, and perceiving low quality of life. Bobby gave a simple example of being unable to engage in the simple activity of watching his favourite sports, as he can't hear the programme well, and the pain caused by migraines. He outlined that he spends most of his time laying down trying to minimise the pain he experienced in his ears and head. He suggested in a serious manner that there was no hope for him, and that he could only try to survive day by day. He also expressed that he had depression which inhibited him from doing things he wanted in life.

"With my depression, I can't do anything. I don't do anything; I am just not bothered about anything. I just want to get by, and retire, that's my goal." (Bobby, 62)

The survival coping style was experienced by participants struggling the most with their decreased mental wellbeing, and those who felt hearing loss had a greater negative effect on their lives than anything else. Although sombre, it can be the basic coping style for PHL struggling the most, until their struggles decrease, or more appropriate support is facilitated which can ultimately

improve their quality of life. Awareness of these coping styles would be useful moving forward to personalise the help needed for each PHL towards stable or improved mental wellbeing.

4.9. Explaining the general layout of the CHAI grounded theory

The CHAI theory was developed to explain the relationship between hearing loss and mental wellbeing, by representing how hearing loss can impact a PHL's mental wellbeing, but also explain why in some cases there no effect is identified. The CHAI grounded theory visually represents both experiences, by having two version of the same construct, the left side represents how hearing loss negatively impacts metal wellbeing, whilst the right side explains how hearing loss can have little to no impact whilst referring to the same core categories (Figure 4.7.).

As explained at the beginning of the results section introducing the CHAI theory, each category of the theory explains the process of how hearing loss can impact mental wellbeing. For PHL whose mental wellbeing is impacted by their hearing loss, this occurs by an accumulation of everyday restrictions caused by hearing loss. These inabilities can subsequently impact PHL's sense of autonomy, negatively changing their self-perception, and causing an undesired identity shift. This deterioration in ability can lead PHL's coping threshold to be exhausted leading to decreased mental wellbeing. How well PHL subsequently deal with hearing loss in their daily lives can depend on which coping style they adopt. PHL whose hearing loss doesn't cause decreased mental wellbeing can be because, their hearing loss isn't perceived as restricting. These PHL don't perceive a change in their ability, identity, or autonomy. Overall, they have

sufficient coping styles to deal with any restrictions caused by their hearing loss and their coping threshold remains unexhausted.

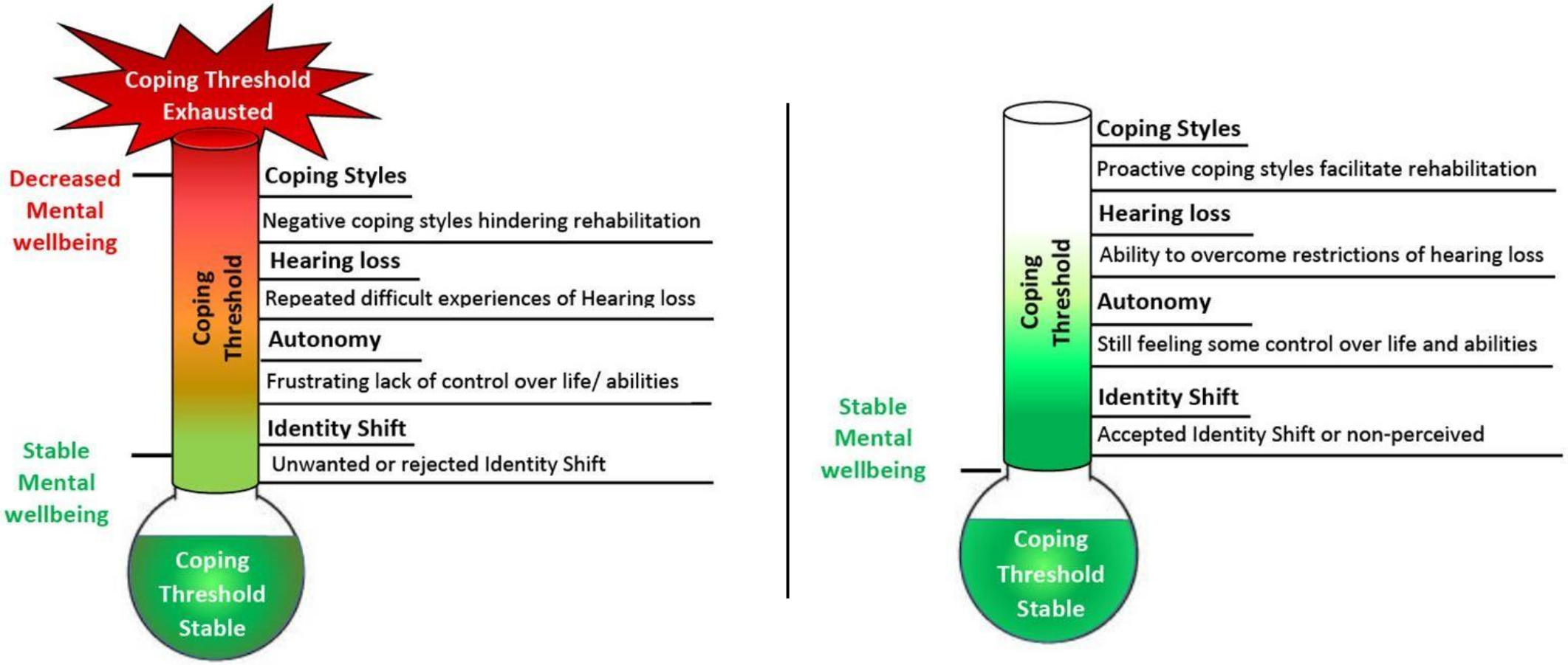


Figure 4.7. The CHAI Theory: A grounded theory explaining the relationship between hearing loss and mental wellbeing

4.10. Summarising the CHAI Model

The CHAI grounded theory formed consisted of five main categories that influenced the relationship between hearing loss and mental wellbeing: *Coping Threshold, Coping Styles, Hearing Loss, Autonomy, and Identity Shift*. These five major components were formed to thoroughly explain the relationship between hearing loss and mental wellbeing. Each component was deeply described and the links between each factor and mental wellbeing was explained.

The CHAI grounded theory showcases in-depth evidence that hearing loss can decrease mental wellbeing of people with hearing loss when: their coping threshold becomes exhausted due to hearing loss, negative coping styles are adopted (inconsistent coping, passive coping, denial coping, survival coping), repeated difficult experiences due to hearing loss is experienced, PHL feeling less autonomous and not in control of their life/ abilities, or have had difficulty coming to terms with their hearing loss identity. On the other hand hearing loss was not a direct factor influencing the mental wellbeing of people with hearing loss who had a stable coping threshold, successfully managed their hearing loss through use of hearing devices, adopted a positive coping style (proactive coping, acceptance coping, supported coping), were able to overcome restrictions of hearing loss, had other significant health comorbidities that were seen as more significant, and minimised the perceived impact of hearing loss, felt they had continued control over their lives and abilities, and accepted their new hearing loss, or felt that they were still the same person and hearing loss didn’t change their existing identity. As this is a grounded theory, the components of CHAI were the grounded reflections from the

33 participants interviewed. Thus, as encouraged in grounded theory practice, the CHAI grounded theory is open to progressing, and continuing to evolve in the future, when applied in subsequent studies and with different samples.

5. CHAPTER 5: THEORY EVALUATION

5.1. Introduction

After a grounded theory is created, the novel theory is strongly recommended to undergo an evaluation phase, particularly considering the methodology's emphasis on rigour, trustworthiness, and groundedness (Charmaz & Thornberg, 2020). Evaluating a grounded theory after its formation can provide an understanding as to whether the theory established can work in the real world, and is relevant for the population it is formed for (Glaser & Strauss, Charmaz, 2006; 2014). Charmaz suggested that the grounded theory should provide abstract understandings and showcase meanings relevant to the participants (Charmaz, 2014). Each grounded theory school has a different set of evaluation criteria (Charmaz, 2014; Charmaz & Thornberg, 2020). Thus, during this evaluation process, the formed grounded theory should be assessed based on the evaluative criteria set by the grounded theory school the researcher followed throughout their grounded theory study (Charmaz & Thornberg, 2020). Evaluation of the grounded theory has been identified as an important process for establishing the quality and relevance of the grounded theory developed (Charmaz & Thornberg, 2020). As this grounded theory study followed Charmaz's constructivist grounded theory school and adopted its principles throughout, the evaluation criteria used the evaluate the CHAI model were those used in constructivist grounded theory.

The four components evaluated within the constructivist grounded theory is credibility, originality, resonance, and usefulness, which are tested to achieve qualitative rigour (Charmaz, 2014; Charmaz & Thornberg, 2020; Glaser & Strauss, 2017a; Glaser et

al., 1968). Credibility begins in the study data collection process and involves having sufficient relevant data that facilitated asking incisive questions and aided in developing a thorough analysis (Charmaz, 2017). This also importantly depends on the reflexivity of the grounded theory researcher, as they are required to have a methodological self-consciousness, which means being aware of their hidden beliefs and how that could influence their research process (Charmaz, 2014, 2017; Charmaz & Thornberg, 2020). Thus, grounded theory researchers should be as reflective and transparent as possible regarding their views and actions throughout the different stages of the study (Charmaz & Thornberg, 2020). *Originality* on the other hand aims to assess the novel insights of the grounded theory, establishing the significance of the results identified following analysis, and providing a fresh conceptualisation of the phenomenon under investigation (Charmaz, 2014; Charmaz & Thornberg, 2020).

The third evaluation criteria is *Resonance* which aims to evaluate whether the established theory and it's constructed concepts represent the research participant's experiences, but are also still applicable to individuals and circumstances that are different than those by which the theory was created (Charmaz & Thornberg, 2020). Resonance overall aims to identify how applicable the developed theory is in the contemporary world (Charmaz, 2017). Finally, *usefulness* involves developing a foundation for policy and practice applications of the developed grounded theory, as well as establishing avenues for implications for future research, whilst revealing pervasive practices within the field that may hinder its potential application (Charmaz & Thornberg, 2020). The following sections will explicate the process by which the CHAI grounded theory was evaluated using the constructivist's evaluation criteria credibility, originality, resonance, and usefulness,

and the results of this evaluation. This grounded theory was also evaluated using the GUREGT tool (Berthelsen et al., 2018) that was used to evaluate the grounded theory studies in Chapter 2. The results of the GUREGT evaluation are also presented below.

Consistent with the broader aims of this thesis, the present chapter evaluates the CHAI grounded theory model primarily in relation to mental wellbeing as a broader psychosocial and lived construct, rather than focusing solely on clinically diagnosable mental health conditions. While some participant accounts reflected experiences of psychological distress, anxiety, or low mood, the evaluation process primarily explored how well the developed theory captured wider experiences relating to identity, coping, communication, social connectedness, relationships, and everyday wellbeing in people with hearing loss.

The aims of this chapter were to evaluate the CHAI grounded theory which explains the relationship between hearing loss and mental wellbeing. The objective was to assess the credibility, originality, resonance, and usefulness of the formed theory and evaluate how well it works.

5.2. Method

The present grounded theory study performed an evaluation of the CHAI grounded theory in three ways. The first method to perform this evaluation was by using Charmaz's constructivist detailed evaluation criteria to be reflexive on the formed theory. This required me undergoing a reflexive process to assess the extent to which grounded theory processes were applied in the current study. This was done by

considering the methodological procedures applied whilst conducting the grounded theory study in a transparent manner. This reflexivity was vital for establishing the credibility and originality criteria for assessing the CHAI theory.

Secondly, two focus groups were performed during this grounded theory evaluation. Focus group 1 involved PHL who gave their feedback on the CHAI model, regarding its relevance, and how well they resonated with the theory. Focus group 2 was conducted with audiology clinicians which aided in exploring the usefulness of the grounded theory. It also helped identify potential future avenues for the CHAI theory to be clinically applied which should be further established through research.

Finally, the GUREGT tool was used as the final evaluation stage of the CHAI grounded theory. GUREGT was used to assess the degree to which grounded theory principles were applied in the present study. This was done by applying the same critical appraisal process as in the systematic review performed in Chapter 2, where the GUREGT tool was used to evaluate application of grounded theory studies in the hearing loss research by detailed investigation of each grounded theory principle. The details and results of this evaluation process is presented below.

5.2.1. Focus Groups

The aim of focus groups was to evaluate and assess the produced CHAI grounded theory, by obtaining expert feedback from the two most relevant participant groups, namely (1) patients with hearing loss (like those interviewed based on demographics characteristics), and audiologists (the relevant health practitioners).

Focus groups are a common qualitative method used to obtain multiple perspectives on a specific topic/subject at one time-point. Normally the sample size of a focus group is from two to six individuals (Onwuegbuzie, Dickinson, Leech, & Zoran, 2009). This is to ensure that all present participants have the opportunity to provide their own views, as a larger sample size could be overwhelming for both the participants and the researcher (Rabiee, 2004).

The usefulness of focus groups is in its facilitation of gaining different opinions regarding the subject, in a timely manner which is idea for feedback on research outputs (Onwuegbuzie et al., 2009). Having the collective interactions between participants and snowballing of ideas can offer unique insights and contrasts that were not previously anticipated by the researcher. This is an advantage that only focus groups as a method obtains, and one that was desired for the current project, to gain feedback on the grounded theory model that was created (Rabiee, 2004).

There are disadvantages to using focus groups however, with the more confident and opinionated participants dominating the discussion, leaving no voice for other participants (Onwuegbuzie et al., 2009). I attempted to overcome this in the present study in two ways. The first was to pilot the focus group, which provided insight into the dynamics that I would face and how to shift between respondents evenly. The second way was to have co-facilitation in the focus group to provide a greater level of supervision to ensure all participants were engaging and those who could not speak in one turn, had the opportunity next. Overall, the focus group method was the most relevant method for completing the evaluative phase of the grounded theory project.

5.2.2. Ethical Approval

Ethical approval was granted on the 4th February 2021 by the University of Nottingham Faculty of Medicine & Health Sciences Research Ethics Committee. Ethics Reference number: FMHS 158-1220; Sponsor Reference: 18081; Related Project reference number: FMHS 83-1807.

5.2.3. Sampling

Purposive sampling was used to recruit eight individuals, four PHL experiencing hearing difficulties, and four audiologists that work in Audiology clinics across the UK. This sampling was specifically chosen as it involves targeting a specific sample of the population with certain characteristics and enables the selection of a varied sample.

Variation in the characteristics of the sample populations of both groups was pursued. For the patient group, a mix of PHL impacted by their hearing loss and others that were not impacted was needed as the theory formed represents both groups. In the audiologist group a variety of working experience (minimum of 2 years to ensure adequate time of working experience in audiology) was pursued to gain different levels of perspectives and insights. Snowball sampling was also used in the recruitment of two audiologists who were at the Audiology clinic (Nottingham University Hospitals NHS Trust) and heard about the study through their colleagues. They were approached by me with the opportunity to take part in the study and agreed to do so.

5.2.4. Recruitment

Participants were recruited based on the following eligibility criteria:

Focus group 1 (FG1) Inclusion Criteria:

1) Have hearing difficulties.
2) Fluent in English (as interviews will be conducted in English and there are no costs available for translators).
3) Age 18+ years old.
4) Able to give informed consent.

FG1 Exclusion criteria:

1) People with a self-reported cognitive decline or dementia.

Focus group 2 (FG2): Inclusion Criteria:

1) Audiologist with at least 2 years' experience.
2) Fluent in English.
3) Age 18+ years old.
4) Able to give informed consent.

FG2 Exclusion criteria

1) Audiologist with work experience in audiology of less than 2 years (to ensure they had enough audiology working experience to draw upon during focus group).

FG1: Participants were recruited via email from the NIHR Nottingham Biomedical Research Centre (BRC) research participant database. After responding with initial interest and an online or scanned completed demographic form that showed their self-reported hearing loss (no audiogram was obtained), duration of hearing loss, fluency in English, age, and occupation, I selected the most representative four by email or telephone, based on the participants' pre-existing reported preference. I then informed the participant of all aspects pertaining to participation in the study.

Possible participants received a link to an online participant information sheet. Participants had as much time as they required to read the form and make an informed decision whether they wish to take part in the study. When they agreed to take part, they were sent an informed consent form online using an electronic signature platform. I contacted all consenting participants to arrange the best time and day for the focus group.

FG2: Participants were audiologists recruited via email from the NIHR Nottingham Biomedical Research Centre (BRC) research participant database. Additionally, through Snowball sampling, two audiologists had also agreed to advertise the study through word-of-mouth to their colleagues and provided my contact information (email/ telephone number) to express interest. Those interested were then informed of all aspects pertaining to participation in the study and received a link to an online participant information sheet. Participants had as much time as they required to read the form and make an informed decision on whether they wish to take part in the study. When they agreed to take part, they were sent an informed

consent. I contacted all consenting participants to arrange the best time and day for the focus group.

For both FG1 and FG2:

It was explained to the potential participant that entry into the study is entirely voluntary and that their treatment and care would not be affected by their decision.
It was also explained that they could withdraw at any time. In the event of their withdrawal, it was explained that their data collected so far could not be erased and we would seek consent to use the data in the final analyses where appropriate.

5.2.5. Sample

The sample size for the current study was eight participants, four in each focus group ensuring data saturation as described previously. This sample size was adequate for performing a thematic analysis of focus groups as suggested by Breen (Breen, 2006). She states that homogenous groups of 4–6 participants in each group are sufficient for achieving trustworthy data saturation, and appropriate for a qualitative focus group focusing on in-depth experiences.
FG1: Four participants with experience of self-reported hearing loss (N=4) were recruited in group focus group one. A table summarising participant characteristic for focus group one can be seen below (Table 5.1.).

Table 5.1. Focus group one participant characteristics

No.	Pseudonym	Age	Type of Hearing loss	Age of Onset	hearing loss	Level of Hearing Aid/ Cochlear Implant	Device Usage
1	Leon	72	Presbycusis	62	Severe	HA	Consistent

2	Mitch	64	Presbycusis	55	Moderate	HA	Inconsistent
3	Pamela	58	unknown	25	Severe	HA	Consistent
4	Whitney	48	unknown	39	Moderate	HA	Consistent

FG2: Four participants with at least 2 years of audiology clinical experience (N=4), were recruited in focus group two. A table summarising participant characteristic for focus group two can be seen below (Table 5.2.)

Table 5.2. Focus group two participant characteristics

No.	Pseudonym	Age	Level of clinical audiological experience
1	Jacob	30	5+
2	Sandra	42	20+ years
3	Shannon	38	10+ years
4	Terry	47	20+ years

Critical Appraisal of the current grounded theory research project against GUREGT tool

5.2.6. Procedure

A topic guide with evaluative questions were established prior to the focus group to guide the discussion. This was sent to all focus group moderators (two moderators in each focus group) beforehand to be familiar and use effectively. Examples of the questions on the topic guide can be seen in Table 5.1.

Table 5.3. Focus Group 1. Example topic guide questions

Example Topic Guide questions

a) *Hearing loss: prod questions*

1. Does this factor fit well within the model? Why and how?
2. Is this factor relevant for you when you think of your relationship with hearing loss and mental wellbeing? Why and how?
3. Does this make sense to you? Why and how?
4. Do you agree/disagree with any of the presented hearing loss factors?
5. Does this factor fit well within the model? Why and how?
6. Is this factor relevant for you when you think of your relationship with hearing loss and mental wellbeing? Why and how?
7. Is there anything here that is missing in your experience of hearing loss and mental wellbeing?
8. Do you feel represented in this model?
9. Are there any points you think I've missed or something you think I should know?
10. What if anything would you change?

The following was the procedural stages for focus group one: FG1:

1) An online pre-meeting 'coffee morning' was arranged with recruited people with hearing loss (PHL) and the two focus group moderators Yasmin Ali and Dr Adele Horobin (Participant involvement specialist in hearing loss research). This took place a week before the scheduled focus group and will take place on the same platform the focus group will occur, Microsoft Teams aiding participants to become familiar with the platform in preparation for the actual focus group. It was twenty minutes long. During this meeting the Researcher and participants had the opportunity to informally chat, get to know one another and build rapport to make the actual focus group less awkward and unfamiliar. It was also

to enable participants feeling more confidence and less intimidated in sharing their true opinions.

2) All participants were sent a 10-minute recorded video explaining the CHAI grounded theory 1 week prior to the focus group. In this recorded video I restated the aims of the focus group, giving background to the study, how the model was formed, and then described the model, and its five main dimensions: Coping threshold, Hearing loss, Identity Shift, Coping Styles, and Autonomy. This was to give participants enough time to digest the theory and contemplate its components. It was also done to give an opportunity for participants to develop their own opinions and feedback beforehand, for best use of the focus group duration (70 minutes).

3) The online focus group took place on Microsoft Teams with PHL from 10:30am until 11:40am. During the focus group they referred to their experiences of hearing loss and/or mental wellbeing whilst evaluating the credibility, originality, resonance, and usefulness of the presented grounded theory model. Since there were five main dimensions to the model, the focus group was structured to have 10 minutes assigned to each for discussion. A pilot focus group was conducted prior to the actual focus group to ensure the timings were performed appropriately.

The following was the procedural stages for focus group two: FG2:

1) All participants were sent a 10-minute recorded video explaining the CHAI grounded theory one week prior to the focus group. In this

recorded video I restated the aims of the focus group, giving background to the study, how the model was formed, and then described the model, and its five main dimensions: Coping threshold, Hearing loss, Identity Shift, Coping Styles, & Autonomy. This was to give participants enough time to digest the theory and contemplate its components. It was also done to give an opportunity for participants to develop their own opinions and feedback beforehand, for best use of the restricted focus group duration (1 hour).

2) The focus group aiming to establish the credibility, originality, resonance, and usefulness of the CHAI theory took place on one occasion with the audiologists from 13:00am until 14:00pm (1 hour), on a day most suitable for all participants, and held online on Microsoft Teams and moderated by Yasmin Ali, Adele Horobin, and Paige Church (CRN audiologist). In the focus group audiologists were encouraged to discuss the theory as a whole and refer to their existing audiology expertise to evaluate its clinical relevance. They also provided insight on how the model could be applied into clinical practice.

5.2.7. Patient and Public Involvement and Engagement (PPIE) in the Study

Patient and Public Involvement and Engagement (PPIE) played a critical role in shaping the study, ensuring that the research remained relevant, accessible, and reflective of the experiences of individuals with hearing loss. PPI contributors were PHL of varying genders, ages, and types of hearing loss, who had signed up to become a part of the PPIE group after taking part in earing research. In total six

PPIE members advised me during this study, two took part in mock interviews, two gave feedback on study material and two were involved in chairing the analysis focus groups after the theory was developed, at multiple stages, from the design and planning of the study to the dissemination of findings.

To enhance the practicality and inclusivity of the study, PPI representatives participated in mock interviews, providing feedback on the clarity and appropriateness of interview questions. Their insights helped refine the wording of questions to ensure they were understandable and meaningful to people with hearing loss. PPI members also reviewed study materials, including participant information sheets and consent forms, ensuring accessibility and suitability for the target population.

During data analysis, PPI members were involved in reviewing study data, offering perspectives on how themes and findings resonated with lived experiences. This helped ensure that the interpretation of the data remained grounded in real-world experiences and that the final theoretical model accurately reflected the challenges and coping mechanisms of people with hearing loss.

Additionally, a PPI representative chaired focus groups, facilitating discussions and ensuring that the voices of participants were actively incorporated into the research. Their involvement strengthened participant engagement and created a more inclusive, participant-led research environment.

Overall, the integration of PPI in this study enhanced the credibility, applicability, and impact of the research, ensuring that the study remained participant-centered and that its findings would be meaningful and useful for individuals with hearing loss and healthcare professionals alike.

5.2.8. Ethical Considerations

Mental wellbeing may be regarded as a sensitive topic by participants, and therefore this study took certain measures to ensure that no harm befell participants, both during and after the study. During the focus groups, the framing of questions was ensured to be appropriate through the pilot focus group with PPI (public and patient involvement members), which was carried out before the main interviews took place.

Planned prior was that if participants became distressed the focus group moderator would have stopped the focus group recording, offered a break, and asked if they were okay to continue. If participants no longer wished to take part in the study, they could immediately withdraw. Neither event occurred in either focus group.

A debrief form with the resources and services available for individuals who could be experiencing overwhelming difficulties was provided. Some examples of services and organisations include ‘Let’s Talk-Wellbeing’, Wellness in Mind, and for PHL: Nottinghamshire Deaf Society Hard of Hearing Social Club’ (Appendix E).

5.2.9. Analysis Methods

Data analysis involved initial coding, and focused coding of the focus group transcripts. The qualitative software N-Vivo36 was used to help record, categorise, and organise data analysis. This was to aid in disentangling the main themes from the subthemes for theoretical formation. These processes followed the principles of inductive thematic analysis (V. Clarke & Braun, 2017, 2018). Initial and focused coding were the two main stages of qualitative analysis that was applied to analyse

the data from both focus groups (V. Clarke & Braun, 2018). Constant comparative analysis was also completed as part of the implementation of proper grounded theory principles (Charmaz, 2014).

5.3. Results

The four components of the constructivist grounded theory the CHAI model was evaluated against were credibility, originality, resonance, and usefulness, (Charmaz, 2014; Charmaz & Thornberg, 2020; Glaser & Strauss, 2017a; Glaser et al., 1968). The results will reflect on each evaluation component and compare to the analysis of the feedback provided in the focus groups. It's important to note that each component has a set of questions that need to be answered, and the focus group data applied to some but not all questions that required other evidence. This is evident through the established purpose of each component as explained by Charmaz which are restated below (Charmaz & Thornberg, 2020). Some components of evaluation such as Credibility and Originality, are largely evaluated based on how well the grounded theory methodology is applied. This is established through researcher reflexivity, in which the researcher assesses how well they applied grounded theory principles. Thus, the evaluation data from the focus groups are applied where appropriate in meeting Charmaz's constructivist grounded theory evaluation criteria, and researcher reflexivity is applied for other sections as the constructivist school requires.

5.3.1. Credibility

Credibility involves having sufficient relevant data that facilitated asking incisive questions and aided in developing a thorough analysis (Charmaz, 2017). This also

importantly depends on the reflexivity of the grounded theory researcher, as they are required to have methodological self-consciousness, which means being aware of their hidden beliefs and how that could influence their research process (Charmaz, 2014, 2017; Charmaz & Thornberg, 2020). Charmaz has suggested that grounded theory researchers should be reflexive regarding their views and actions throughout the different stages of the study (Charmaz & Thornberg, 2020). Charmaz provided six questions for a grounded theorist to reflect upon and use as criteria for assessing the credibility of their grounded theory study (Charmaz, 2006). These are:

1. Does the grounded theory study show clear familiarity and connection to the setting or topic explored?
2. Does the data pertain appropriate range, number, and depth?
3. Was analysis compared in an ongoing manner?
4. Do the categories cover a variety of empirical settings?
5. Does the data analysis and emergent arguments link rationally?
6. Would a detached reader be able to agree with the findings of the grounded theory study?

I will apply reflexivity and outline below how each criterion outlined by Charmaz was met to substantiate the credibility of this grounded theory study from my perspective.

1. Does the grounded theory study show clear familiarity and connection to the setting or topic explored?

As the lead grounded theorist, I maintained a constant familiarity with the data over the study's 3-year period. I achieved in-depth familiarity by completing the data collection for each of the 33 interviews myself. The topic explored was the relationship between hearing loss and mental wellbeing, which was explored recurringly in each interview. During the semi-structured interviews, participants had the opportunity to discuss their experiences of hearing loss and mental wellbeing in an open manner, and they were allowed to discuss related experiences that were relevant for them. The interviews were successful in capturing in-depth, insightful, detailed, and nuanced accounts of the experiences of living with hearing loss and any impacts it had on PHL's mental wellbeing.

As I completed the data collection for the interviews, I also analysed them concurrently, to stay familiar with the data, and closely monitor the relevant processes and factors that were beginning repeatedly discussed by participants. I also subsequently coordinated and conducted the subsequent focus groups also for theory evaluation which directly investigated the developed grounded theory. The connectedness of the data to the topic investigated can also be directly showcased by the grounded theory developed and the direct quotes given by participants which transparently relate to the topic explored, i.e., hearing loss and mental wellbeing.

2. Does the data pertain appropriate range, number, and depth?

To ensure the appropriate range and depth of the data, the study applied theoretical sampling. Through theoretical sampling, the data and sample being collected were routinely reflected upon, and areas missing or requiring more exploration were

actively pursued. For example, within this study, the initial sample of involved individuals with Presbycusis and were from an older population, many of which indicated the importance of interviewing people with hearing loss from a younger population. I actively pursued this and ensured the recruitment of younger PHL who adults were still, thus the current sample includes PHL as young as 18. Overall, having a variety of PHL from different age groups, types and causes of hearing loss, indeed improved the range of experiences explored, and lent to the rich data collected in this grounded theory study.

The initial number of interviews targeted was N=30, however as theoretical sampling was applied, the need to recruit more participants with different characteristics such as being younger, or having a rarer type of hearing loss, such as sudden hearing loss was actively pursued. Thus, more individuals were recruited and interviewed until theoretical saturation (the point in which data collected and analysis cease to provide novel information or teachings) was deemed to be obtained by myself and my supervision team. The total number of participants recruited was N=33, which also exceeds the recommended number for a grounded theory study's sample of at least N=30 (Creswell & Poth, 2017). In addition to the two focus groups conducted (N=4 each), a total of N= 41 participants were recruited in this grounded theory study.

3. Was analysis compared in an ongoing manner?

As data were analysed, the emergent focused codes and subsequent categories were compared between each interview. After the focused codes were then checked against data from different interviews, they were developed into theoretical

categories that provided direct insight into the experience of hearing loss and mental wellbeing. These comparisons also enabled the identification of the most significant processes and experiences between all participants and start forming understandings for the foundation of the grounded theory. Constant comparative analysis was performed in this manner throughout the analysis process. For example, the experiences of hearing loss in older PHL were compared in younger PHL, during analysis, and the significance of type of hearing loss experienced was also closely compared to investigate any insightful distinctions between participants. This also acted as a technique to identify the areas needed for further exploration through theoretical sampling as mentioned above.

4. *Do the categories cover a variety of empirical settings*?

The current study was set in a relevant healthcare setting due to the nature of this study which aimed to investigate the chronic condition of hearing loss. The study took place within the Nottingham Audiological Services setting, as this was the affiliation of the research team, and where the Audiology clinic we recruited from was based. Efforts were made to extend the areas from which this study had ethical approval to recruit patients from. This was successful and other healthcare settings were pursued and ethical approval was obtained to recruit from with Audiological services throughout the East Midlands in Derbyshire, Leicester, and Loughborough. This area was specifically chosen as the interviews were being conducted in-person (before the outbreak of Covid-19) and to make commuting to the interview site in Nottingham more reachable if they wanted to take part.

Despite the relevant and range of experiences provided, future studies could aim to recruit PHL cross-nationally and at a wider scope. This could aid in the initial assessment as to whether PHL's experiences of hearing loss could be impacted by their local healthcare. The interviews conducted in this study with participants from across the East Midlands in the UK did not indicate an importance of regionality to the experience of mental wellbeing and hearing loss. Thus, it was accepted that the setting of the current study was deemed as appropriate and sufficiently relevant.

5. *Does data obtained rationally link to the analysis and emergent arguments?*

This study was conducted in a clear and systematic manner. The data collected was also analysed concurrently as interviews progressed to facilitate the identification of strong emergent links early in the grounded theory process. Crystallisation was also frequently performed, during which I critically reflected on the analysis, memos, and interview notes. I also carefully considered the links forming between focused codes and categories and cemented the groupings of each based on their pertinent links. I believe that the categories and focused codes detailed in the results section showcases the relevant and rationale links made during analysis to appropriately form the CHAI grounded theory. I believe this transparently reflects the appropriate basis and relevant rationality of the CHAI grounded theory.

6. *Would a detached reader be able to agree with the findings of the grounded theory study?*

The answer to this question was obtained through the focus group conducted aiming to evaluate the CHAI grounded theory. Within the first focus group the CHAI model

had been presented to four new participants with hearing loss. These four individuals were not from the same 33 participant sample who had previously been interviewed, and thus entirely detached from the theory formation. Each participant expressed they the CHAI theory was easily understandable and that they agreed with its explanations of hearing loss and mental wellbeing. Whitney expressed:

"So, I really liked the model. I thought it was very relatable and it made me more aware about how my hearing is impacting me, like I could see, it explained a lot of what I'd been going through, and just realising other people were living the same thing." (Whitney, 48)

Whitney expressed that she found the CHAI grounded theory to be relatable, and that it accurately and adequately reflected her own hearing loss experiences. She also appreciated that the theory validated her own experiences, and she realised that others were being just as impacted by their hearing loss as she was experiencing.

The second focus group consisted of four audiologists who were not involved in the theory formation, and their first interaction with the CHAI grounded theory was to evaluate it. All four audiologists found the CHAI theory to be relatable and agreed with its components, scope, and depth. Sandra indicated this stating:

"I thought it was well laid out I thought it was really relatable and I could see that they (patients with hearing loss) would be able to understand how you're trying to describe things." (Sandra, 42)

Overall, through both focus groups it is argued that the CHAI grounded theory has some substantiated evidence to be understandable, relevant appropriate for the hearing loss

population it was designed for in explaining different relationships between hearing loss and mental wellbeing.

5.3.2. Originality

Originality aims to assess the novel insights of the grounded theory, establishing the significance of the results identified following analysis, and providing a fresh conceptualisation of the phenomenon under investigation (Charmaz, 2014; Charmaz & Thornberg, 2020). In 2006 Charmaz outlined the following questions for grounded theorist to judge the extent of originality of their formed grounded theory:

1. Do the categories offer unique insights?
2. Is there novel conceptual representation of the data?
3. To what extent is developed grounded theory socially and theoretically relevant?
4. To what extent will the grounded theory *"challenge, extend, or refine current ideas, concepts and practices?"* (p. 182).

I will next outline how each criterion outlined by Charmaz was met to substantiate the originality of the CHAI grounded theory.

1. Do the categories offer unique insights?

Novel insights into the experiences of hearing loss and mental wellbeing were provided through the semi-structured interviews conducted with people with hearing loss, which enabled the exploration of new insights and varying understandings. These led to the development of the causally related categories that were then

established to form the CHAI grounded theory. This novel and substantive grounded theory presented in the Section 4.8. can be used to explain in detail the causal factors leading hearing loss to being a direct factor in negatively affecting mental wellbeing. It can also nuancedly be used to explain in detail the factors which contribute to hearing loss having no direct impact on an individual's mental wellbeing. Thus, the CHAI grounded theory extends its originality in being the first grounded theory to detail and represent varying experiences of hearing loss and mental wellbeing, directly showcasing the predominant processes involved which individuals in the hearing loss population can encounter in their daily lives. To the knowledge of this research team, it is the first qualitative grounded theory that offers insight into these experiences and facilitates novel understandings of the relationship between hearing loss and mental wellbeing.

2. Is there novel conceptual representation of the data?

The developed CHAI grounded theory indeed represents the main factors (categories) and processes that influence the relationship between hearing loss and mental wellbeing in a novel visual representation (Figure 4.7). This representation of the data is a detailed and clear reflection of the range of factors a person with hearing loss can experience and how it can impact their mental wellbeing. The CHAI model showcases the experiences of hearing loss and mental wellbeing to be fluctuating (as presented by linking the coping threshold with the concept of a thermometer) depending on life factors, and thus this relationship exists in a fluid and alternating manner.

3. To what extent is developed grounded theory socially and theoretically relevant?

The CHAI grounded theory reflects prominent social processes which were deeply rooted in explaining how hearing loss impacts mental wellbeing. For example, the social participation restrictions caused by hearing loss was identified as a direct factor that led to social isolation and withdrawal, which ultimately decreased mental wellbeing of many PHL. The social relevance of the CHAI grounded theory thus emanates from the strong connections hearing loss has on people's chances and extents to their ability to socialise. The CHAI theory extremely relevant in explaining social processes related to hearing loss.

The theoretical relevance of the CHAI grounded theory is prominent as it is the first grounded theory to explain the relationship between hearing loss and mental wellbeing. Theoretical understandings of the factors influencing this relationship is needed to begin to identify the psychosocial needs of people with hearing loss, to aid in accommodating for the impacts of hearing loss on their mental wellbeing, and thus begin to personalise clinical practice for this specific group. More detail on the social and theoretical relevance of the CHAI grounded theory is provided in the discussion chapter (Chapter 4). Overall, the CHAI grounded theory is suggested to be of deep social and theoretical relevance and acts as a substantiated theoretical foundation for future studies exploring hearing loss and mental wellbeing to build upon.

4. To what extent will the grounded theory "challenge, extend, or refine current ideas, concepts and practices?" (Charmaz, 2006)

The CHAI grounded theory extends understandings of the relationship between hearing loss and mental wellbeing, by acting as the first grounded theory to explain the factors involved in mediating this relationship in a detailed and directional manner. It also refines current concepts previously associated with hearing loss such as participation restriction, social isolation, and social withdrawal in a more detailed manner, that goes beyond simply stating these processes and identifies the instances in which they can impact a PHL's mental wellbeing. It extends current understandings of hearing loss and mental wellbeing by identifying novel concepts which were not associated with hearing loss previously such as the seven-hearing loss coping styles, the coping threshold, some PHL stating they experiences a process of zombification due to their hearing loss. Thus, the CHAI grounded theory has provided new analytical insights, with novel insights that can be relevant to further current clinical practices. This meets in detail Charmaz's criteria for a worthy grounded theory (Charmaz, 2006). The originality of this grounded theory will be discussed in greater detail in Chapter 5 which describes where the CHAI grounded theory is situated within the literature, establishing what the existing understanding between hearing loss and mental wellbeing was and highlighting the novel insights provided by the grounded theory.

5.3.3. Resonance

R*esonance* is an evaluation criterion which aims to evaluate whether the established theory and it's constructed concepts represent the research participant's experiences. It aims to establish that the theory developed is relevant and deeply applicable to individuals and circumstances that are different than those

by which the theory was created (Charmaz & Thornberg, 2020). Resonance overall aims to identify how applicable the developed theory is in the contemporary world (Charmaz, 2017). Charmaz identified the following for questions as criteria to assess the resonance of a developed grounded theory (Charmaz, 2006 , p.182):

1. Is the breadth of the studied experience represented in the main categories?
2. Have you taken any meanings for granted?
3. Does the data indicate links made between collective institutions and individual lives?
4. *"Does your grounded theory make sense to your participants or people who share their circumstances? Does your analysis offer them deeper insights about their lives and worlds?"* (Charmaz, 2006, p.182)

I explore resonance in relation to the CHAI grounded theory below under each heading.

1. Is the breadth of the studied experience represented in the main categories?

A breadth of experiences relating to hearing loss and mental wellbeing is indeed represented in the main categories which form the CHAI grounded theory. The current study actively attempted to attain and accurately represent a wide range of relevant experiences explain the relationship between hearing loss and mental wellbeing. Thus the 33 participants recruited comes from different age groups, types, and degrees of hearing loss, working backgrounds, and use of hearing devices. Crucially, the sample also has a mix of individuals whose hearing loss did impact their mental

wellbeing and those who didn't to ensure insights into understanding the causal factors behind both processes was established. This approach offered rich insights that evolved into core theoretical categories which formed the CHAI theory. The breadth of experiences attained was also visually represented in the CHAI by having two sides, one which explains how hearing loss can be negatively impacted by hearing loss, and the other represents how for some PHL hearing loss has no impact and their mental wellbeing is not influenced.

2. Have you taken any meanings for granted?

Meanings of concepts and processes within this grounded theory study were actively pursued, to avoid taking them for granted, or applying researcher bias. Conceptualisations of meanings were explored with the participants themselves, until they were understood from their own perspectives, and as constructed during their personal experiences. At the beginning of the study, the meaning of mental wellbeing as established within the psychological field was deemed as needing development and understanding the concept in a more grounded manner for the purposes of this study. To appropriately understand how people with hearing loss experienced their mental wellbeing, it was identified as crucial to attain a conceptualisation of what defined mental wellbeing from the participants themselves. Participants were asked "*What does mental wellbeing mean to you*?" in each of the 33 interviews. This facilitated gaining insight into what mental wellbeing meant for some individuals within the hearing loss

population and enabled early insight into whether, based on these definitions, how hearing loss for some deemed to have an influence. Please refer to chapter three above which outlines PHL's definitions of mental wellbeing and how it related to their hearing loss.

The meaning of other theoretical categories and concepts were continuously reflected upon during data analysis. These "theoretical" terms which acted as the core categories of the CHAI model were further assessed in terms of understandability and appropriateness after conducting the two focus groups, and all participants expressed it was straightforward, and easy to understand and comprehend as outlined above.

3. Does the data indicate links made between collective institutions and individual lives?

The data reflected some links between collective institutions in the form of occupational institutions, and any impact workplace accommodations (or lack thereof) had on participants and how it influenced their mental wellbeing. This was insightful as analysis identified the tendency for some blue-collar occupational institutions to underestimate or even discriminate against the impacts of hearing loss, in comparison to governmental or educational workplaces. Many participations also experienced stigmatisation and ridicule to their hearing loss from work colleagues within this setting further lending to understanding how larger collective institutions can influence PHL's individual lives on a daily basis.

This grounded theory study also provided deep insight into how some student PHL experience their hearing loss within educational settings such as university and college. Some PHL felt less able or confident in comparison to other students, and they missed most of the educational information being provided in lectures/ lessons, which impacted their educational attainment, and their subsequent life chances.

Healthcare institutions in forms of Audiology clinics were also reflected upon and the services PHL received. Many PHL reflected on the fact that it took them a long time to seek these services, or they had to be encouraged heavily by others to pursue. The quality of audiology services participants received then influenced how well they subsequently coped with their hearing loss, e.g., appropriate hearing aids were provided, compassion was seen from audiologists etc.

4. *"Does your grounded theory make sense to your participants or people who share their circumstances? Does your analysis offer them deeper insights about their lives and worlds?"* (Charmaz, 2006, p.182)

The question was explored and answered in detail through the two-focus group conducted aiming to evaluate the CHAI grounded theory. The first focus group consisted of four individuals who were entirely detached from the theory formation, and only exposed to the CHAI theory through the focus group participation. Each participant expressed that the CHAI theory made sense to them and that it offered in-depth and detailed reflections of their range of experiences. Mitch, a PHL with

presbycusis explained that he felt the theory made sense and that he felt represented within it:

"I completely see the value in this and can see myself fitting into the different niches you talked about. I have hearing loss and it could be corrected with hearing aids. For example, the hearing aids, I felt very conscious of wearing them, as you the model says, my identity was changing. I felt that. Sometimes it felt awful. I did feel that people then started to shout at me thinking I couldn't hear at all. And it made me a little bit so self-conscious then. And even now I must admit it, although I wear the hearing aids, all the time." (Mitch, 64)

Mitch's comment expressed that after getting hearing aids he started to be very self-conscious which subsequently impacted his mental wellbeing, and despite having his hearing aids for some years now, he struggles with his hearing loss identity. This was reflected in CHAI by the category Identity Shift, which as Mitch stated indicated a significant change in identity (identity shift), which he was still experiencing. Mitch felt he was well represented, and that the CHAI theory resonated with him immensely due to his hearing loss struggles and stigma. He also stated that the value of the CHAI theory was in its ability to be applicable to his wide range of experiences of hearing loss and mental wellbeing. Whitney, a person who had experienced hearing loss since her thirties said that she found the grounded theory to be relatable and that it represented her own experiences:

"So, I really liked the model. I thought it was very relatable and it made me more aware about how my hearing is impacting me, like I could see, it explained a lot of what I'd been going through, and just realising other people were living the same

thing." (Whitney, 48)

This shows her positive opinion of the CHAI theory, in which she felt represented, and she explained it aided her understanding of her own experiences of hearing loss. She expressed the CHAI theory was useful as for her it even acted as a learning tool to better understand the impacts her hearing loss could have.

Pamela was a unique participant as she could identify with both sides of the CHAI theory. She experienced losing her hearing during her 20s, but subsequently regained some hearing after undergoing an operation, and during this period her hearing loss no longer impacted her mental wellbeing. Since then, however, her hearing loss has returned, and it continues to impact her mental wellbeing:

"Your picture thing. Sorry, CHAI, I can see both sides of it. Because one I was 25 when I went deaf and mine is a disease caused by having baby. I've also passed it, passed it on to my daughter. She's got the same problems and that age having a child really affected me because I'm not being able to hear properly. As in, but not the operation Stapedectomy that gave me hearing back. So, I was back on the other side of you sister yeah, yeah everything is great! I can hear again and fine. And then it deteriorates. The other side deteriorates. So, I'm back down. So, I'm jumping from side to side and then now they've got Holder. It's affected me with grandchildren because when I'm out and I can't hear. I was frightened. I wouldn't hear them when it was a baby, so wouldn't have them stop till there was like 2 and I was confident then to have them overnight that I would hear them if there was a problem. Thing is that this saying that is your partner now. Sorry my partner thought we was completely In Sync with hearing problem. I had until we went to the

road." (Pamela, 58)

Pamela greatly related to the two sides of the CHAI theory, as her mental wellbeing was negatively impacted during the presence of hearing loss and was not impacted during the absence of it. She expressed that similarly to the coping threshold thermometer, her own experiences of hearing loss fluctuated many times throughout her life due to different operations she underwent. She then associated these fluctuations in experiencing hearing loss, with fluctuations in her own mental wellbeing. She directly attributed hearing loss as a factor that mediated her mental wellbeing, as when some hearing was gained, she felt well and that everything was "great". However, when she lost her hearing again, she would feel down and lose confidence in her abilities. She would also feel frightened that she became inadequate to look after her grandchildren due to her hearing loss. This account expresses the detailed and comprehensive relevance of the CHAI grounded theory to PHL.

The CHAI model also adequately represented the experiences of people with hearing loss, whose hearing loss did not directly impact their mental wellbeing. The four participants in the patient focus group, had three participants that had experienced negative experiences of hearing loss, whereas one participant felt their hearing loss didn't impact them negatively. All participants felt represented in the CHAI model and could identify with the different components of the model. Leon was the one PHL who expressed that the CHAI theory resonated with him in explaining his hearing loss restrictions and how it impacted his romantic

relationship sometimes which was frustrating, but ultimately not significant enough to influence his mental wellbeing:

"I think it (CHAI model) is relevant for me, I am there. There were a couple of things that certainly resonated for me. Come on that is this issue of people shouting. If they don't think that you're hearing, particularly if you're not able to hear the first time someone has said that. And that's something which I experience occasionally. I think probably in terms of interpersonal relationships with my partner, and she is extremely tolerant. I have to say of my hearing loss and is very supportive. And I don't think my emotional wellbeing is really being significantly affected by my hearing loss, but there are inevitably occasions when. I don't hear what my wife says, and then she comes back and says, but I you know, I did say this, and I suppose there is an issue about had I actually not listened, which happens in all relationships. Or is it a product to my hearing loss? But the fact that those two things get overlaid sometimes result in some frustration and some tensions in in in my relationship anyway. And your theory touches on that. I haven't got what I used to have and that is a long-term permanent problem which I have to manage as best I can, and I think I'm pretty resilient about that really." (Leon, 72)

This is positive as the CHAI theory also represented individuals who became frustrated with their hearing loss restrictions but still managed to cope with their hearing loss adequately. This indicates that the grounded theory made sense to PHL whilst also offering them deeper insights about their lives and experiences of hearing loss and mental wellbeing. Overall, the CHAI theory validated for the experiences of PHL in the FG1.

Within FG2, all four audiologists who evaluated the resonance of the CHAI theory found it to be relevant and agreed with its components, scope, and depth:

"I've found the model to be very relatable and it made me think about I worked at hearing clinic as one of their service managers for a while. Where you meet people who've got sudden acquired profound hearing loss and were there for the mental health side of it is really apparent and everything when I think about all of those kinds of patients, the model worked really well for all of them." (Shannon, 38)

Shannon's notion of the CHAI theory was that it was a comprehensive reflection of the experiences of all the thousands of patients she'd treated throughout her 15year long career in Audiology. She expressed that she saw her patients fitting into either side of the CHAI theory depending on the experiences of patients which related to causal factors outlined in the grounded theory.

Some participants in the audiologist focus group also indicated that the CHAI was the first comprehensive theory that they had come across which they felt appropriately explained the relationship between hearing loss and mental wellbeing. Sandra expressed that CHAI was detailed and reflected the experiences of all the patients she had interacted with in terms of category coping styles:

"I really liked the coping styles. I could think of so many patients for virtually all seven coping styles, and to actually have something that went, and this is your coping style, so I recommend this… and or even if it was just, you know, this is obviously a negative coping style. Therefore, let's focus on that a little bit more. And I think that would be very helpful." (Sandra, 42)

Overall based on feedback and analysis of the two evaluation focus groups which included both PHL patients and audiology clinicians, the CHAI grounded theory is indicated to have strong resonance for both groups. This is because the grounded theory was found to consistently make sense to people who shared the main participant's circumstances, who were interviewed, and the theory formed with. Crucially the CHAI theory was also indicated to offer deeper insights for PHL about their experiences with mental wellbeing. It was also indicated to have helped PHL in the focus groups understand how hearing loss can impact their everyday lives and ultimately their mental wellbeing much better showcasing the extent of resonance and possible future usefulness. Overall participants with hearing loss felt sufficiently represented in the CHAI theory and their experiences of mental wellbeing were exemplified. This reflects the strong grounded nature of the CHAI theory and that it was formed deeply from within the experiences of people with hearing loss.

5.3.4. Usefulness

Usefulness involves developing a foundation for policy and practice applications of the developed grounded theory, as well as establishing avenues for implications for future research, whilst revealing pervasive practices within the field that may hinder its potential application (Charmaz & Thornberg, 2020). Charmaz outlined how to assess usefulness even further based on four evaluative criteria:

1. The applicability of the grounded theory to the "everyday worlds" of individuals

2. Does the study's theoretical categories capture both generic and in-depth insights?

3. Does analysis identify the need for additional future research?

4. How does the grounded theory build upon existing knowledge?

Below each component is criteria is reflected upon and discussed accordingly.

1. The applicability of the grounded theory to the "everyday worlds" of individuals

The CHAI grounded theory was deeply constructed based on the everyday experiences of participants with hearing loss. During the interviews PHL reflected upon hearing loss and how it influenced their mental wellbeing. For many this meant permanent affects and life alterations which they encountered in their everyday worlds. The social world, the occupational world, the familial world, the educational world, the romantic world, and many more were impacted on a daily basis for PHL who struggled to cope with their hearing loss. For these PHL, their mental wellbeing and confidence subsequently decreased in each of these worlds also. The CHAI grounded theory records and reflects these multi-situational impacts of hearing loss and mental wellbeing, and thus is applicable in most settings in everyday life.

The CHAI grounded theory was also identified as being a possibly insightful tool within the healthcare services PHL encounter in their "everyday world". Audiologists saw great potential in the usefulness of the CHAI theory for guiding audiological practice:

"I'm found the model to be very relatable and it made me think about I worked at hearing clinic as one of their service managers for a while. Where you meet people who've got sudden acquired profound hearing loss and were there for the mental

health side of it is really apparent and everything when I think about all of those kinds of patients, the model worked really well for all of them." (Shannon, 38)

Terry expressed the potential usefulness and relevance of the CHAI theory explaining in her clinical field explaining:

"So, I do get the most distressed patients referred to me and I thought the CHAI offered quite useful kind of framework. So, if you were talking about autonomy then it's about how that person feels within their family setting and how the hearing loss is impacted on them. Being in a responsible role and then being dependent on other family members. So, I was just thinking of a case recently and you know that her family. Because she had a severe hearing loss and dizziness, they didn't let her even go to the end of the garden. It would do anything in dependently so actually talking specifically about why that was and how steps to make that change and practical advice." (Terry, 47)

Overall this indicates that the CHAI model was deemed as relevant, representative, applicable, and has great potential usefulness for explaining the relationship between hearing loss and mental wellbeing in everyday practice.

2. Does the study's theoretical categories capture both generic and in-depth insights?

The theoretical categories identified in the CHAI theory capture both generic and in-depth insights. The generic overview of factors is provided in the grounded theory. For example, the fluctuating nature of the coping threshold is a generic category which can be applied to other distressing life factors, not just hearing loss. However,

the focused codes forming this category delves much deeper into indicating exactly how a PHL's coping threshold can become exhausted, and why for some it remains stable, specifically outlining the different factors involved. Thus, the CHAI grounded theory was designed to obtain a balanced representation of generic yet significant categories, which were then expanded upon using focused codes to reflect its relevant deeper constructs and insights.

3. Does analysis identify the need for additional future research?

The need for useful future research was directly identified by audiologists in the second focus group who reflected deeply on CHAI's applicability with a healthcare setting. Sandra stated that she saw the need for future research to translate the CHAI theory into a clinical tool which could be used by audiologists to spot and support struggling PHL.

"I'm interested in where this goes and what next happens with this model, how it could be used. It almost feels to me as if. I recognize the things we're talking about, the same little bits I think are super interesting. It could act as a conversation opener with a patient, but I'm not sure where I would then go from that point, or where staff would then go from that point." (Sandra, 42)

Sandra's quote indicates the value of the CHAI theory in facilitating understandings between the hearing loss patient and clinician, with it being useful to initiate mental wellbeing conversations with PHL. However, she indicates that further work is needed to establish how the CHAI theory can be translated and established as a tool for audiologists to facilitate greater long-term clinical usefulness.

Jacob also expressed that the healthcare culture within the audiology services he worked within in Nottingham obtained a more technological focus for aiding the rehabilitation of PHL rather than considering any psychosocial impacts:

"Since I've trained at the Nottingham Audiology Services I think if we came across a patient who was severely affected their mental health or severely affected their wellbeing. It was kind of we took that approach that. You know what? We're not gonna delve in it too much and we're just going to basically pass them over to hearing therapy and have sat in a few hearing therapy appointments. This is kind of a lot is very different to what audiologists do like you kind of cutting out the technological side of hearing aids and those kinds of aspects." (Jacob, 30)

For all four audiologists the primary focus was testing the patient's hearing and establishing the characteristics of their hearing loss. Their practice heavily relied on recommending and fitting assistive technology such as hearing aids if the patient was prepared to adopt an assistive device. Interestingly, the audiologists themselves expressed frustration that psychosocial impacts of hearing loss were not discussed and a technological focus was dominating the profession, but attributed this especially due to practical barriers such as time constraints:

"I think modernisation was wonderful but sent us down that technology route. There's been a lot over recent years to try and draw back from that and to become a rehab profession rather than hearing aid dispensing profession and that. But I think even those of us that shout loudest about that still reflect on our own services. To know that a lot of staff see the hearing aid as the be all and end all and are very scared to open the conversation wider. And some (audiologists) will even argue

vehemently that they don't have time (in an audiology appointment). If you know if they ask a question, they're going to unearth a whole can of worms that they just don't have the time to go there. We're trying to get them to include asking about emotions, emotional impact, and just on that. They're saying, you know, we don't have the time to go there. You know, we need to get on to the next patient so it's really quite challenging." (Sandra, 42)

Thus, it became apparent that the psychosocial impacts of hearing loss that many patients may want to discuss and gain feedback on how to deal with, is currently overlooked by most audiologists. This confirms the findings of previous research that suggests a misalignment between the personalised needs as recognised by patients and the audiological care they receive from audiologists (Grenness, Hickson, Laplante-Lévesque, Meyer, & Davidson, 2015; Manchaiah, Dockens, Bellon-Harn, & Burns, 2017). This outlines a crucial area for much-needed future research; to explore and identify a practical way for relevant psychosocial impacts of hearing loss on PHL to be detected and targeted adequately in audiological settings. It is important to emphasise that this support given by audiologists would exclusively aid PHL whose psychosocial struggles directly related to their hearing loss, and not the impact of other general stressors or psychological disorders. The CHAI grounded theory could be utilised as a guide to identify and discuss impacts of hearing loss on mental wellbeing, however more research to develop the grounded theory into a feasible guide is still needed before this can take place.

4. How does the grounded theory build upon existing knowledge?

This grounded theory study built upon the existing knowledge established which indicated the participation restrictions of hearing loss, such as impairment of communication, decreasing PHL's ability to interact, whilst also possibly leading to social isolation and withdrawal consequently for some. However, this study greatly builds upon this knowledge by making novel relevant and explanatory connections between these processes. The CHAI grounded theory also provides detailed understandings which outlines how, when, and why the mental wellbeing of some PHL is negatively affected and why some PHL are not affected by it. This provides strength to the CHAI theory's trustworthiness and rigour as a grounded theory. Overall, this study has the potential to enrich understandings of hearing loss and mental wellbeing in different life settings and provide a guide to detect and target factors that may decrease some PHL's mental wellbeing.

5.4. GUREGT Evaluation of CHAI Grounded Theory

The GUREGT tool that was used to evaluate audiology studies that used grounded their methodology has also been applied as the final step of evaluation for the current study. GUREGT is the first Guideline for Reporting, Evaluating, and applying the core principles of Grounded Theory studies (GUREGT) created (Berthelsen et al., 2018). GUREGT was designed to assess the quality of a grounded theory study by evaluating the depth of applications of the 12 core principles of grounded theory (Described in Chapter 2 and Appendix A).

The GUREGT tool was applied to evaluate the current study for methodological transparency and to establish how well-grounded theory methodology was applied in creating the CHAI model. GUREGT was applied to capture if learnings from the

systematic review were applied in the current study and establish how well this study avoided the common downfalls that were found in previous audiology grounded theory studies. The current study was scored by myself (YA) against each item based on a scoring system where **0= No**: Not reported or Questions not answered; **1= To some degree**: Questions not fully answered as required; **2= Yes**: Questions answered in full (Table 5.4).

Table 5.4. Critical Appraisal of the current grounded theory research project against GUREGT tool

GUREGT Item	Constructivist Evaluation Criteria	Evaluation	Item Score
Study aim	Is the grounded theory study aim presented to construct a theory focusing on examining process and actions?	Yes, the aim of the present study was to construct a theory examining the relationship between hearing loss and mental wellbeing. Please refer to chapter one, section 1.6. for a summary of the aims and objectives of this study.	2/2
Philosophical framework	Is the grounded theory embedded in symbolic interactionism and social constructivism?	Yes, as clearly stated in chapter two, this grounded theory study follows social constructivism and symbolic interactionism. See chapter two, section 2.3. This is also discussed in chapter 6 (reflexivity) which elaborates on why I chose the constructivist grounded theory school to follow.	2/2

The researchers' role	Is the researchers' reflective and interpretive stance in a two-way interaction with the participant described and explained?	Yes, I have been reflective regarding my interpretive stance during this research process. Please see chapter two, section 2.3. and detailed reflections in chapter 6 (reflexivity). In these reflections I have transparently described my prioritisation in maintaining a balanced two-way interaction between myself and the study participants.	2/2
Data collection	**1)** Are data collection methods described and explained? **2)** Has qualitative or quantitative data collection methods been used? How and why?	The study's data collection methods are described and explained in full in chapter three of this thesis. Chapter two describes in detail the grounded theory methodology and school of grounded theory followed. Chapter three, section 3.2. contains detailed information regarding the methos used to collect data (semistructured interviews and focus groups). I explained how I used these qualitative methods in detail in chapter three. Chapter two, section 2.4. Includes details regarding the overall	2/2 2/2

		methodology of grounded theory.	
Memos	Have memos been written throughout the study about concepts and categories and are they used to formulate and construct the theory?	Yes, memos were written throughout the study (see extracts of reflexive journal in chapter six). I also used memos during the categorisation of codes, in addition to post it notes and mind maps to facilitate the theoretical formation of the themes. See section 3.7. in chapter three regarding analysis methods.	2/2

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Sampling procedures	**1)** Is initial sampling conducted in the beginning of data collection described and explained?	Yes, initial sampling was used at the start of data collection. This was described and explained in section 3.4.2.	2/2
	2) Is theoretical sampling of the emerging categories and theory from the data collection described and explained?	Yes, theoretical sampling was used during the emergence of categories which is described in full in chapter 3.4.2.	2/2
	3) Is the selection of participants guided by theoretical sampling? How?	Yes, the selection of participants was guided by theoretical sampling. Younger PHL and PHL with sudden hearing loss were actively pursued. See section 3.4.2. for more detail.	2/2
Theoretical saturation	Is the reach of theoretical saturation explained according to no new insights relevant for the concepts and categories and the emergent theory?	Yes, theoretical saturation was reached and explained in full in section 3.4.3.	2/2

Analysis and coding	**a)** Is the coding levels and a concurrent process of coding described according to initial, focused, and theoretical coding? **b)** Which codes has guided the specific coding levels and how?	Yes, initial, focused, and theoretical coding were applied and discussed in full in section 3.6. Yes, codes that have guided coding levels and influenced the formation of themes	2/2 2/2

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		are stated in the results in form of focused codes. See section 3.7.	
	c) Is the basic social process identified before conducting focused coding?	Yes, the basic process of how hearing loss can impact mental wellbeing was identified before conducting focused coding, as it was identified as the process and is stated in the main aim of this research project. See section 1.6., chapter one.	2/2
	d) Which theoretical codes have structured the theory to a progressive level of abstraction?	Yes, theoretical codes that have structured the theory to a progressive level of abstraction are displayed in the results as the main headings throughout section 3.8.	2/2
	e) Is the constant comparison method used to compare incidents with incidents, incidents with categories and categories with categories?	Yes, the constate comparative method was used to compare incidents in data and categories. See section 4.2.7.	2/2
	f) Is the simultaneous data collection, analysis and coding guided by the theoretical sampling and writing	Yes, the data collection, analysis and coding were guided by the memos established as stated and explained in section: 3.7. and 3.8.	2/2

	memos described and explained?		
Review of literature	**1)** Is the literature reviewed initially	Yes, an initial literature review was conducted	2/2

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	in the grounded theory study to expand the contextual framework? Why and how?	and presented in chapter one of this thesis. The initial review was undertaken to create baseline understandings regarding hearing loss and mental wellbeing, such as their definitions. It was also conducted to establish what has research has been done in the field relating to hearing loss and mental wellbeing.	
	2) Is the literature reviewed during theory development on the basis of the emerging concepts and theory? How and on what grounds?	Yes, the literature review was subsequently reviewed and updated as a more in-depth literature review is established in the discussion in chapter five. This was to situate the CHAI theory with the relevant literature and theories that exist that could help explain how hearing loss impacts mental wellbeing.	2/2

Results/ the theory	**a)** Is the main social interactions of the theory presented and explained?	Yes, the main interactions (how hearing loss impacts PHL, their mental wellbeing and their subsequent interactions in everyday life) are presented in the CHAI theory results, chapter three, section 3.8.	2/2
	b) Is the basic social process and the related categories presented and explained?	Yes, the basic social process (how hearing loss impacts mental wellbeing) and its related categories are presented and explained. See chapter three section 3.8.	2/2
	c) Does the theory account for the essential processes and actions in the social interactions of the participants?	Yes, the CHAI theory accounts for the essential processes and actions related to how hearing loss can impact mental wellbeing in PHL, and these factors are explained in full in chapter, section 3.8.	2/2
	d) Are quotes used and argued for to describe the theory?	Yes, quotes are used to argue for and describe the theory. Please chapter three section 3.8. for examples of quotes.	2/2

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Discussion	Are the key relationships between the categories and codes discussed and related to relevant literature?	Yes, the key relationships between categories and codes are discussed as relevant to the literature. Please see chapter five (discussion).	2/2
Evaluation criteria	**1)** Are the criteria of credibility, originality, resonance, and usefulness presented and explained? **2)** Are the evaluation criteria used to evaluate the theory?	Yes, the criteria credibility, originality, resonance and usefulness are presented and explained in chapter four (CHAI theory evaluation). Yes, the evaluation criteria were used to evaluate the CHAI theory in a thorough manner Please see section 4.3. above.	2/2 2/2
		Total Score	**50/50**

5.4.1. Conclusions GUREGT Scoring

The current grounded theory research project scored 50/50 whilst assessing the level of grounded theory applications during the formation and evaluation of the CHAI theory. This indicates that the primary grounded theory processes recommended for each grounded theorist have been followed, which aid in establishing a thorough theory development process have been followed.

In acknowledging the use of **the GUREGT tool** in this PhD thesis, it is important to recognise potential biases that may have influenced the results. As the researcher, I was aware of the tool's criteria in advance, which may have subconsciously shaped the way I structured and presented my study to align with its requirements. This

foreknowledge meant that I could knowingly accommodate each criterion, ensuring that the thesis met the highest possible standards outlined by the tool. While this does not invalidate the quality of the research, it does suggest that the study had an inherent advantage in achieving a high score, as it was designed within the framework of these established guidelines.

Furthermore, the nature of a PhD thesis inherently provides a significant advantage in assessments like GUREGT. PhD research is expected to be comprehensive, contextually rich, and deeply analytical, often containing extensive methodological justifications, theoretical developments, and detailed discussions of findings. These qualities naturally contribute to higher scores in rigorous evaluation frameworks. However, the true challenge will emerge when attempting to publish the CHAI theory in peer-reviewed journals, where space constraints and editorial expectations will limit the depth and breadth of discussion. Unlike a thesis, which allows for extensive exploration of concepts, a journal article requires conciseness and focused argumentation. This constraint may make it difficult to achieve a perfect GUREGT score in publication, as some contextual depth and elaboration will need to be sacrificed for clarity and brevity.

As outlined in the systematic review, grounded theory studies reported in a thesis format achieved higher GUREGT scores compared to journal articles, and it was suspected to be due to a greater wordcount providing an opportunity to discuss the methodological procedures in detail. However, some studies, although a very small minority, succeeded in addressing the main grounded theory processes in their publications and achieved high GUREGT scores. Ensuring this level of

methodological detail is maintained in the journal publication outputs of the current research project will be more challenging than addressing them in a thesis. However, conducting the systematic review and using the GUREGT tool has engraved the importance of prioritising transparency of how the methodology was applied in all research outputs. Thus, following the 10 steps for grounded theory methodological excellence established in the systematic review, whilst also using the GUREGT tool to remain cognisant of the level grounded theory processes should both be both applied and reported.

Additionally, in evaluating the CHAI theory, even though in theory it suffices the GUREGT tool that the theory's credibility, originality, resonance, and usefulness were evaluated in a focus group, leading to a full score. In fact, these were only two focus groups of a limited number of people, and thus generalising the CHAI theory as applicable to the entire group of PHL would be false and inaccurate. Rather, as with any grounded theory, the CHAI model should continue to evolve and adapt, the more research is done that helps shape and inform it's main concepts.

5.5. Conclusion

Evaluation of the formed grounded theory is an essential and often overlooked process in grounded theory research. The present grounded theory study performed an evaluation of the CHAI grounded theory in three ways to establish credibility, originality, resonance, and usefulness. The first was applying Charmaz's constructivist evaluation criteria using reflexivity. Secondly, two focus groups were conducted to evaluate the CHAI theory's resonance for people with hearing loss and understand the theory's usefulness from clinical audiologists for future

research. Finally, the GUREGT tool was applied to assess the level of application of grounded theory principles.

Evidence for the CHAI theory to have high credibility, originality, resonance, and usefulness was found from the limited focus groups and reflexivity conducted. This evaluation process aided in capturing examples lending to the trustworthiness of the grounded theory developed. The CHAI grounded theory scored 50/50 using the GUREGT tool, which is positive, lends to the methodological strength if the present study. However, due to the detailed nature of a qualitative thesis, the present study recognises an advantage in having greater opportunity to state these methodological details compared to published grounded theory papers with limited wordcounts.

The focus groups included participants with different, even opposing, experiences relating to hearing loss and the CHAI theory resonated with each, which is positive. I recognise however that the focus groups conducted in total only had eight participants and it wouldn't be accurate to generalise the applicability of the grounded theory from such a small sample. The two focus groups only provided an initial evaluation of the CHAI grounded theory developed in this study.

Grounded theory by nature in an ongoing process with constructivist grounded theorist both acknowledging and encouraging the ongoing development of a grounded theory and for it to progressively be updated and changed based on subsequent research. The present study advocates for this process also, and states that through this in-depth evaluation that a thorough, relevant, and robust grounded theory explaining the relationship between hearing loss and mental wellbeing has

been established for this process to effectively continue. It importantly also identified avenues through which the CHAI grounded theory could be developed in future research and how it could be useful in audiology healthcare settings. An opportunity exists for a more substantive evaluation to take place.

6. CHAPTER 6: DISCUSSION OF THE CHAI GROUNDED THEORY

6.1. Introduction

This chapter discusses the CHAI grounded theory in relation to existing literature and theoretical perspectives relevant to hearing loss and mental wellbeing. The findings are critically explored to examine how the developed theory aligns with, extends, and contributes to current understandings within the fields of psychology, health research, and hearing loss research.

The literature review in Chapter 1 did not directly discuss theories relating to hearing loss and mental wellbeing. Once the CHAI theory was finalised and evaluated as discussed in Chapter 4, the theoretical categories forming the CHAI grounded theory were read upon extensively. The analytic process continues in this chapter by comparing the significant theoretical categories to the extent literature. This allowed for the CHAI theory to be compared to existing theories and concepts established within the fields of psychology, health research and hearing loss research. It aided in ultimately identifying how the CHAI grounded theory was situated within the field, and importantly enabled the identification of what novel findings the CHAI theory pertains. This further analysis also allowed for novel understandings to be gained regarding the relationship between hearing loss and mental wellbeing. Each of the five theoretical categories and relevant focused codes are explored in detail and the CHAI theory formed is discussed and situated even further below.

The five core theoretical categories of the CHAI grounded theory and their relevant sub-categories acted as the core concepts searched and the relevant and needed knowledge for this discussion was attained. Literature was selected based upon its relevance and the information it pertained which would contribute towards situating the CHAI grounded theory. Thus, the most relevant studies were found to be in the field of hearing loss, health psychology, and chronic illness research. This was to retain a focus on the most relevant and significant studies and enable their review and discussion in a coherent manner. The CHAI grounded theory was reviewed in relation to the available literature, to understand the scope of the theory's novel contribution, and establish future usefulness. This is discussed below. Finally, this chapter reflects upon the possible limitations of this grounded theory study, and the recommended areas for future research which will continue to investigate hearing loss and mental wellbeing.

6.2. Definition of Mental Wellbeing by PHL

Participants' definitions of mental wellbeing varied significantly, shaped by their personal experiences and challenges related to hearing loss, and their life circumstances. However, four key categories were constructed through iterative analysis that encapsulate how PHL perceive and define their mental wellbeing were: Wellbeing Equilibrium, Capability, Identity Maintenance and Managing everyday life. I attempted to summarise a definition of what mental wellbeing meant to PHL in the following sentence: *Mental wellbeing, as perceived by PHL, is a dynamic state of emotional balance, personal capability, identity continuity, and resilience in*

managing daily life challenges, allowing individuals to maintain stability, autonomy, and a sense of self in the face of adversity.

The four core aspects needed to define mental wellbeing for PHL were integrated in the CHAI theory and are each a specific construct found in the model as they also explained how and when hearing loss influenced mental wellbeing. Wellbeing Equilibrium, Capability, Identity Maintenance and Managing everyday life are also discussed in relation to contemporary literature in the upcoming sections when discussing the CHAI theory.

6.2.1. Hearing loss

6.2.1.1. Hearing loss characteristics and their implied influence on mental wellbeing

The CHAI grounded theory extends the work of Heffernan et al. (2016) which specifically investigated the psychosocial impacts of mild to moderate hearing loss, by including PHL with different hearing loss levels, thus broadening the range of hearing loss experiences. Participants in this study had varying levels of hearing loss, including mild, moderate, severe, and profound hearing loss, and individuals from each group were found to experience difficulties related to their hearing loss, which ultimately impacted their mental wellbeing. In support of the finding that hearing loss can impact mental wellbeing regardless of it's degree, is a systematic review that investigated the prevalence of depression in people with hearing loss, that was directly associated to their condition (Adigun, 2017). Based on 25 studies, the review concluded that experiences of depression due to hearing loss were evident in PHL populations of all degrees of hearing loss (Adigun, 2017). This

5828 further reinforces the notion that hearing loss can impact the mental wellbeing of
5829 any PHL, regardless of the extent of their hearing loss.

5830 Interestingly, the CHAI grounded theory identified sudden hearing loss as one type
5831 of hearing loss that can have a significantly greater impact on an individual's mental
5832 wellbeing than other types. People with sudden hearing loss described their
5833 hearing loss as a traumatic experience that caused deep emotional distress, which
5834 they still struggled with even years after it occurred. People with sudden hearing
5835 loss in this study outlined that they lived with recurring negative emotions due to
5836 their sudden hearing loss. These included feelings of grief due to losing their
5837 hearing, anxiousness, hopelessness, and that dealing with their hearing loss was
5838 still an ongoing struggle to cope with in their everyday life. For most participants
5839 with sudden hearing loss, the experience of this type of hearing loss itself was a
5840 direct factor for experiencing decreased mental wellbeing. Chung and colleagues
5841 were the first to investigate the relationship between living with sudden
5842 sensorineural hearing loss and developing a diagnoseable anxiety disorder (Chung,
5843 Hung, Lin, & Sheu, 2015). They investigated 3,522 Taiwanese patients with sudden
5844 sensorineural hearing loss, and 10,566 Taiwanese control subjects who did not
5845 have this hearing loss. Participants from both groups were matched based on
5846 gender and age. A conditional logistics regression, calculated from each sample
5847 was previously diagnosed with an anxiety disorder, was completed. Findings
5848 indicated that 17.8% of the PHL with sudden hearing loss had an anxiety disorder
5849 compared to 11.9% of the control group (Chung et al., 2015). Authors concluded
5850 that this reversed causal relationship indicated that people with sudden hearing
5851 loss were more likely to develop an anxiety disorder than the general population

(Blazer & Tucci, 2018; Chung et al., 2015). Sudden hearing loss has also been associated with high insomnia, with links being made to its anxiety inducing factors (Aazh, Heinonen-Guzejev, & Moore, 2020; Yeo, Yeom, You, Kim, & Lee, 2022). Sudden hearing loss has been strongly associated with developing severe depression also (Arslan, Aydemir, Kaya, Arslan, & Durmaz, 2018; Kim, Lee, & Kim, 2018; Kim, Min, Lee, Park, & Choi, 2020). The associations between sudden hearing loss and depression may be partly due to the process of PHL mourning the loss of their hearing. The CHAI grounded theory explicates that PHL who lost their hearing in a sudden manner were more likely to be in mourning their loss. Research investigating the psychological impacts of hearing loss highlighted as early as the 1970's "the mourning of hearing loss" as a process PHL can undergo after the tragic loss of hearing (Rousey, 1971). Studies have indicated that as any loss can be mourned, the loss of hearing can be tragic for some as it is a primary sensory mechanism that is associated with hopelessness as it cannot be regained (Rothschild & Kampfe, 2021; Rousey, 1971). They indicate that many PHL struggle to accept that their hearing will not return. This is magnified if the reason for the sudden hearing loss is unknown and PHL are unable to understand why their hearing was lost in such a manner (Barker, Scharp, Long, & Ritter, 2020; Rousey, 1971). These PHL continue to mourn the losses in life they associate with their hearing loss such as no longer being able to engage in fulfilling activities with others, or by themselves (Rothschild & Kampfe, 2021). The emotional process of mourning hearing loss has been directly associated with sudden hearing loss, with a lack of closure regarding why a PHL has lost their hearing, being identified as a direct factor causing the ongoing mourning process (Barker et al., 2020; Hetu et al.,

1993; Rothschild & Kampfe, 2021). These studies fit with the psychological and emotional impacts hearing loss was identified to have on some PHL during this grounded theory study. The CHAI grounded theory differentiates between participants who have continued to mourn the loss of their hearing, and those that were able to come to terms with their loss and accept its occurrence. Participants who accepted their hearing loss and established the appropriate coping mechanisms were more likely to not be impacted psychologically by their hearing loss. Whereas participants who continued to mourn their hearing loss continued to experience decreased mental wellbeing. Overall, the specific characteristics of the hearing loss, such as being sudden, can influence it's level of impact on PHL's mental wellbeing, and ultimately influences how well an individual copes with their hearing loss. This further reinforces the importance of having an established theory that investigates a diversity of experiences of hearing loss, and the CHAI grounded theory acts as the first concrete attempt in establishing such an explanatory theory.

6.2.1.2. Direct impacts of hearing loss on mental wellbeing

Indirect impacts of hearing loss were discussed throughout Chapter 1, which established the consequences of hearing loss that lead to decreased quality of life in PHL (Gao et al., 2020). Consequences of hearing loss include impaired interpersonal relationships (Barker et al., 2017; Heffernan et al., 2015; Heffernan et al., 2016); social exclusion (Arlinger, 2003); low self-esteem (Ciobra et al., 2012); and social isolation and withdrawal (Heffernan et al., 2016; Mick, 2014). As identified in the results of the CHAI grounded theory, hearing loss was a direct factor that could exhaust the coping ability of PHL and lead to decreased mental wellbeing. These PHL expressed that their hearing loss condition and its associated

restrictions is what caused a significant decrease in their mental wellbeing. For all PHL that identified hearing loss as impacting their mental wellbeing, negative impacts were long-term due to the ongoing restrictions and nature of hearing loss. They emphasised that the negative constraints caused by hearing loss were a reoccurring phenomenon that arose in their daily lives, even in everyday life situations such as not being able to hear or communicate well whilst shopping, interacting with others, or not hearing well in their workplace or place of education. The recurrent inhibitions reinforced the adverse effects caused by their hearing loss, and the negative impacts it had on their mental wellbeing continued.

These findings of the CHAI theory are also consistent with the extant literature that investigated the impacts of chronic conditions on the wellbeing of individuals in everyday life. A study by Van Houtum and colleagues in 2015 investigated the impact of long-term chronic illnesses on the everyday life of individuals (Van Houtum, Rijken, & Groenewegen, 2015). Using data from a nationwide Dutch panel-study, researchers conducted a cross-sectional linear regression analysis with propensity score matching involving data from 1731 patients with chronic illnesses. These chronic illnesses included asthma, cardiovascular disease, and chronic obstructive pulmonary disease (COPD) (Van Houtum et al., 2015). Results indicated a significant impact of chronic illness on participants in their everyday lives, as one third of participants experienced recurring basic struggles in areas such as housing, finances, employment etc. This was explained by participants experiencing practical struggles due to the burdens chronic conditions can have on finances and life-chance opportunities (Van Houtum et al., 2015). Some participants also experienced recurrent social problems related to their chronic illness, with it

impacting interpersonal relationships with their partner, children, sex-life, or leisure-participation (Van Houtum et al., 2015). These were also associated with individuals becoming less active in their coping behaviours (Buse et al., 2019; Lyons, Sullivan, Ritvo, & Coyne, 1995; Van Houtum et al., 2015).

Younger participants with chronic illnesses have been suggested to experience these recurring everyday problems more so than older individuals (Brose, Scheibe, & Schmiedek, 2013; Van Houtum et al., 2015). This differs to the outcomes of the CHAI grounded theory as both young and old populations experienced difficulties in dealing with their hearing loss. Young PHL struggled in coping with the everyday impacts of hearing loss on their ability to perform at university and in their workplace. Surprisingly, even younger PHL who had acquired their hearing loss during infancy struggled to live with it even when they were older, as they were still having difficulties with the psychosocial restrictions caused by it. Similarly, many older PHL who were in their 70s or 80s also struggled to cope with their hearing loss, as they didn't identify as being "old" and disliked that their hearing aids and hearing loss made them associated with being older. This indicates that at least for the chronic illness of hearing loss, its impacts can be long-term, wide-ranging, and cause negative impacts on mental wellbeing for both younger and older populations alike.

6.2.1.3. Ageing, Hearing loss, and Mental Wellbeing

Healthy ageing is defined by the World Health Organization (WHO) as "*the process of developing and maintaining the functional ability that enables well-being in older age*" (WHO, 2020). Functional ability encompasses the capabilities that allow

individuals to meet their basic needs, learn and make decisions, be mobile, build and maintain relationships, and contribute to society (WHO, 2020). This definition emphasises that healthy ageing is not merely the absence of disease but involves creating environments and opportunities that enable people to do what they value throughout their lives (WHO, 2020). Notably, being free of disease is not a prerequisite for healthy ageing, as many older adults have health conditions that, when well-managed, have little impact on their well-being (WHO, 2020).

According to healthy aging theory, hearing loss is considered a significant factor that can negatively impact overall well-being and quality of life in older adults, as it hinders communication, social interaction, and cognitive function, thereby impacting independence and overall health as people age; essentially, maintaining good hearing is crucial for successful aging (Pichora-Fuller, Mick, & Reed, 2015). This indicates that hearing loss could decrease mental wellbeing in PHL by hindering the healthy ageing process of individuals, by decreasing functional capabilities, and impairing social relationships.

Studies have explored the relationship between age-related hearing loss and mental well-being, highlighting significant associations with depressive symptoms, social isolation, and cognitive decline. A cross-sectional study involving 8,962 older Chinese adults found that individuals with poor hearing had higher scores on the 15-item Geriatric Depression Scale compared to those with normal hearing (Huang, et al. 2022). The study also revealed that social isolation partially mediated this association, accounting for approximately 9% of the effect (Huang, et al. 2022). Similarly, a systematic review and meta-analysis concluded that older adults with

age-related hearing loss are more likely to experience depression than those with normal hearing. The analysis also indicated that gender might influence this relationship, with females showing a stronger association between hearing loss and depression (Li, Jin, Ma & Cui, 2025). In the Nord-Trøndelag Hearing Loss Study, researchers assessed over 50,000 individuals aged 20 to 101 years and discovered that hearing loss was significantly associated with increased symptoms of anxiety and depression. The effects were more pronounced among younger and middle-aged adults compared to older individuals (Turner & Kelly, 2000). Furthermore, a study analysing data from the 2017 National Health Interview Survey in the United States found that adults with hearing loss had higher rates of psychological distress and greater utilization of mental health services (Bigelow, Reed, Brewster, et al. 2020). Notably, among those with moderate or worse hearing loss, individuals who used hearing aids reported lower rates of psychological distress than those who did not use hearing aids. These findings underscore the importance of early detection and management of hearing loss in older adults to mitigate its adverse effects on mental health, promote healthy ageing, and maintain overall well-being of PHL.

6.2.2. Autonomy

6.2.2.1. Feeling less Capable in everyday life

The second construct participants in the present study expressed defined their mental wellbeing was feeling *capable*. PHL stated that their mental wellbeing was attached to perceptions of their personal ability to perform in everyday life, on a physical, cognitive, occupational, personal, and/or social level. Hearing loss was a

factor which many participants directly associated with decreased mental wellbeing as it was the core cause for PHL to become unable to carry out certain life activities. PHL expressed that their hearing loss sometimes acted as a constant barrier which decreased their ability to engage in social interactions. For some participants hearing loss also decreased their ability to perform to their full potential in the workplace or in education, which negatively impacted their sense of capability greatly.

Evidently Autonomy became an established dimension of the CHAI grounded theory due to its significance for maintaining stable mental wellbeing in PHL.

Autonomy is defined as an individual's perceived level of control in their lives. PHL identified that their sense of autonomy was impacted when they felt restricted by their hearing loss, or when they had to rely on others to have successful interactions. Numerous studies investigating the psychosocial impacts of hearing loss on autonomy indicate that PHL reluctantly become more reliant on others to better cope with their hearing loss in social situations (Baratedi et al., 2022; Davis et al., 2016; J. Holman et al., 2021; Mäki-Torkko, Vestergren, Harder, & Lyxell, 2015; Strnadová & Evans, 2015). Some studies have also investigated the impact of hearing loss on cognitive autonomy of younger PHL. Cognitive autonomy is defined as an individual's ability to cognitively engage in decision-making, selfassess, evaluate thoughts, and voice opinions (Beckert, 2007; Michael & Attias, 2016). A study conducted with young PHL found that participants reported feeling significantly less able to voice their opinions due to the impacts of hearing loss on their listening, and had impaired social and interactional skills (Michael & Attias, 2016; Michael & Povzner, 2021). Younger PHL in the current study also vocalised

feelings of decreased autonomy. This was explained by PHL's perceptions of their lacking capabilities, as they felt that they were no longer able to complete tasks as "normally" as others, and their feelings of self-confidence greatly decreased. This further reinforces the importance of feeling capable in the hearing loss population, and their perception that they can rely on themselves to complete tasks and reach their goals in life.

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The integral role of autonomy for feeling mental wellbeing identified in the CHAI theory fits with the central work by Ryff (1989). Ryff established a six-dimension theory for achieving mental wellness, these are: Autonomy, Environmental Mastery, Personal Growth, Positive Relations with Others, Purpose in Life, Self-Acceptance. They suggest these six components are involved for enabling individuals to live a "good life" (Blasco-Belled & Alsinet, 2021; C. D. Ryff & Keyes, 1995; Scaria, Brandt, Kim, & Lindeman, 2020). Ryff's conceptualisation of wellbeing, although established in the late 1980's, is still accepted as relevant, and Ryff's psychological wellbeing scale is still used in contemporary studies within the field (Blasco-Belled & Alsinet, 2021; Joshanloo, 2022; Margolis, Schwitzgebel, Ozer, Martinez, & Lyubomirsky, 2022; Sowani & Lavalekar, 2020). Ryff emphasised the role of autonomy in establishing mental wellbeing as it is linked to an individual's ability to function optimally in everyday life. Ryff also linked autonomy with an individual's ability to achieve self-actualisation, i.e., an individual's ability to develop their abilities, realise their potential and achieve their goals (Ryff, 1989, Kenrick & Krems, 2018; McLeod, 2007). The restrictions associated with some chronic illnesses have been directly associated with decreasing an individual's ability to achieve self-actualization (Croft, Boyer, & Hett, 2009; Gholamnejad,

Darvishpoor-Kakhki, Ahmadi, & Rohani, 2019; Tripathi, 2018), although there is a scarcity of studies that explored the relationship between selfactualisation and hearing loss. The current grounded theory provides some evidence of hearing loss directly negatively impacting PHL's perceived ability to reach their goals in everyday life. Many PHL associated their hearing loss with a decrease in their current abilities that prevented opportunities for their future opportunities and further development. Based on the findings of this study, more focused studies are needed to investigate the impact of hearing loss on the process of self-actualisation.

6.2.2.2. Change in PHL's view of self and abilities

The CHAI grounded theory emphasises the occurrence of an identity shift for some PHL. The hearing loss identity shift reflects the process by which PHL's sense of identity changes due to their hearing loss. This study found that many PHL perceived that their identity could evolve based on the impacts and restrictions created by hearing loss. Some PHL in this study indicated that their condition had altered the self-image that existed before the onset of hearing loss. For some PHL this changed their existing personality in an unwanted and negative manner. These negative perceptions of mental wellbeing were more likely to be associated with decreased mental wellbeing, as PHL indicated that core characteristics of their identity were permanently changed due to their hearing loss.

Narrative research suggest that an individual's identity can be reconstructed based on individuals experiencing major changes that disrupts their lives, including developing hearing loss (Barker et al., 2020; Scharp, Barker, Rucker, & Jones,

2018). Studies in the field of hearing loss have also emphasised the importance of identity on how well individual's cope with their condition. Research indicates that an individual's perceived identity can have an influence on their subsequent audiological rehabilitative choices and how they ultimately deal with their illness (Laplante-Lévesque, Hickson, & Worrall, 2010). Changes to a PHL's selfperception has been associated with the negative impacts of hearing loss, as many PHL begin to perceive an impaired social identity, due to participation restrictions (Barker et al., 2017; Hallberg, 1999; Heffernan et al., 2016). How PHL perceive their identity has also been suggested to change over time and can become more positive as individual's come to accept their hearing loss (Hindhede, 2012). A recent study by Bennett and colleagues which investigated how individual's with hearing loss coped in everyday life, concluded that PHL's own perceived identity was seen as more negative due to their hearing loss, which caused some individual's to experience emotional distress (Bennett, Saulsman, Eikelboom, & Olaithe, 2021).

Hindhede linked hearing loss with Goffman's identity theory (Goffman & Carpenter, 1963) and implicated the importance of the invisibility of hearing loss on PHL's identity. She expressed that due to the invisible nature of hearing loss, PHL have a greater influence on how to frame their external identity, as PHL can conceal their hearing loss by not stating its existence, or by avoiding wearing a hearing aid, to try and be seen as "normal" (Hindhede, 2012). This theory fits with findings of the CHAI grounded theory as hearing loss being invisible was utilised by participants to control who became aware of their disability and who were hidden from it. This indicates that the hearing loss identity is a particularly fluctuating construct, which changes depending on how PHL want to represent themselves to others and how

comfortable they are with their hearing loss (Bucholtz & Hall, 2008; Hindhede, 2012).

The CHAI grounded theory also implies an influence of stigma on how PHL constructed and viewed their self-identity. This study found that the stigma attached to hearing aids and having a hearing loss was an important factor that influenced some PHL to associate negative connotations with their hearing loss. This included PHL believing that others in society would perceive them as being old, intellectually disabled, or generally less competent (Wallhagen, 2009). These negative associations and stigmas of hearing loss have been identified as significant contributors to the difficulties PHL experience in accepting and adopting their hearing loss identity in many hearing loss studies (Barker et al., 2017; Lash & Helme, 2020; Rawool & Kiehl, 2009; Wallhagen, 2010). The CHAI theory also explains that people with hearing loss were found to experience an identity conflict consequently. This is because some PHL viewed their hearing loss as a restraint which inhibited them from being able to act as their true selves. The change in personality many PHL identified was a significant factor that led them to struggle to accept their hearing loss. Similarly, PHL have been found to express a dual identity, one as a person with hearing loss to a significant degree, and the other as being 'normal', as they continued to have some hearing and could still perform interactions (Bell et al., 2016; Dillon & Pryce, 2020; Weinberg & Sterritt, 1986).

PHL have ultimately been found to avoid coping with their hearing loss to protect their personal identity, self-image, and social image (Barker et al., 2020; Hallberg &

Barrenas, 1993b; Hallberg & Carlsson, 1993). Goffman's emphasis on the role of avoiding embarrassment in influencing how individuals present themselves and their identity can be applied to the current study (Goffman & Carpenter, 1963; Hindhede, 2012). Denying or concealing having a hearing loss was often associated with PHL wanting to avoid being seen as less able and protect their perceived identity from embarrassing associations.

The CHAI grounded theory provides deeper understandings on the role of identity and the importance of positive self-perception, and self-acceptance for establishing stable mental wellbeing in PHL. These findings relate to theory of self-compassion. Self-compassion is defined as an individual viewing themselves with kindness and encouragement during turbulent and difficult times (Neff, 2011, 2012). There are three identified factors to self-compassion: self-kindness (an individual looking upon themselves kindly and with positive thoughts), common humanity (an individual feeling connected to themselves and others by recognising that others have experienced similar struggles), and mindfulness (an individual keeps their thoughts related to the present, here and now, and doesn't ruminate on the past) (Dreisoerner, Junker, & Van Dick, 2021; Neff, 2003).

A review by Sirois and colleagues found self-compassion was greatly associated with improved coping outcomes in individuals with chronic illnesses (Sirois, Molnar, & Hirsch, 2015). Self-compassion has also been related to improved coping and mental wellbeing in people with hearing loss. A study explored the relationship between the physical health of older individual's and their perceptions of mental wellbeing. They deployed questionnaires in a sample of 203 participants aged

between 63 and 97 years (Allen, Goldwasser, & Leary, 2012). At least 71 participants had a hearing loss. They found that people with hearing loss who had greater self-compassion were more likely to seek and adopt assistance to deal with their hearing loss (Allen et al., 2012). They concluded that individuals with greater self-compassion had a better relationship with themselves and their condition, and ultimately had greater wellbeing than those with low self-compassion (Allen et al., 2012).

The role of self-compassion is apparent in the retrospective understanding of how hearing loss can impact mental wellbeing and relevant in this grounded theory study. The CHAI grounded theory was formed based on the particular experiences of the sample recruited and was not influenced by existing theories, which is positive for the formation of a trustworthy grounded theory. Thus, no direct focus on self-compassion was established beforehand. The implication of self-compassion in its role of facilitating PHL to accept their hearing loss condition, engage in more positive coping styles, and experience improved mental wellbeing, however, showcases its importance for further investigation. Future studies should explore the relationship between hearing loss and self-compassion more closely and continue to assess its significance for PHL and begin to identify its role in maintaining the mental wellbeing of young PHL also.

6.2.3. Hearing loss Coping Styles

Within the CHAI grounded theory formed in the present study, seven coping styles were identified to be adopted by PHL to deal with their hearing loss. Three coping styles were perceived as positive and aided PHL in their audiological rehabilitation (proactive coping, acceptance coping, & supported coping). These coping styles

were identified to aid PHL in their journey of living with hearing loss and made the experience of hearing loss more manageable. In contrast, the remaining four coping styles identified within the CHAI grounded theory were associated with negative impacts on an individual's mental wellbeing (inconsistent coping, passive coping, denial coping, & survival coping). The type of coping style adopted by PHL in this study was ultimately found to influence the PHL's overall reported experiences of coping with hearing loss, and their subsequent state of mental wellbeing. Additionally, the relevance of each of the seven specific coping styles, were evaluated by other PHL participants and experienced audiology clinicians in the evaluation focus groups. The coping styles were approved by all participants in both groups who expressed direct relatability and relevance of each one.

The primary positive and negative categorisation of the coping styles established by the CHAI theory that were formed to explain the different ways people with hearing loss cope with their chronic condition, and subsequently how that impacts their mental wellbeing, is similar to the findings of Heffernan and colleagues (Heffernan et al., 2016). Whilst investigating the psychosocial impacts of hearing loss, researchers identified two main coping responses PHL adopted when dealing with their hearing loss. The first was *engaged coping* which explicates that people who adopt this coping style take action to deal with their hearing loss such as adopting hearing aids or engage in improved communication tactics with others. On the other hand, *disengaged coping* represented the coping style adopted when PHL weren't actively taking action to cope with their hearing loss, and coped with their hearing loss by withdrawing from social situations. Interestingly they concluded that both coping styles had perceived advantages and disadvantages. For example,

PHL who disengaged in social situations and withdrew themselves could be happy with the calm and quiet achieved, and the ability to cognitively recover from cognitive exhaustion (Heffernan et al., 2016). This lends to the findings of the current study in several ways; firstly, engagement was an underlying confounding factor influencing how PHL were found to be coping with their hearing loss. These subsequent engagement behaviours (or lack thereof) were referred to in each of the seven coping styles as outlined in the CHAI theory. Similarly, a recent study by Bennett and colleagues that investigated how PHLs cope with hearing loss in everyday life and found that some individuals expressed being unable to establish an effective coping strategy. Some PHL described engaging in unhelpful coping strategies such as avoidance, whilst others adopted more helpful coping strategies such as controlling the listening environment, and dealing their hearing loss restrictions with humour (Bennett, Saulsman, et al., 2021).

Heffernan's engaged & disengaged coping (Heffernan et al., 2016), and Bennett's helpful & unhelpful coping categorisations (Bennett, et al., 2021) apply to both the positive and negative coping styles established in the CHAI theory. The biggest distinction between these studies' coping styles and the CHAI theory's, is that these coping styles are based on the behavioural aspects of dealing with hearing loss that has one of two actions: active coping, or inactive coping; helpful coping or unhelpful coping. On the other hand, the CHAI theory extends these understandings of coping, by providing specific explanations for example on why engagement or disengagement were present in each coping style. CHAI additionally outlines factors that influence the coping process of dealing with hearing loss and the subsequent perceptions of mental wellbeing.

Additionally, supported coping, as identified in the CHAI theory, is the coping style of people with hearing loss that is supported by external entities and/ or individuals. This occurs when a PHL is heavily supported by others such as their friends, families, colleagues. This grounded theory study found that these communication partners, could significantly influence PHL by encouraging them to adopt certain health behaviours relating to hearing loss, such as attend an audiology appointment or use hearing aids more often. This coping style coincides with the Communal Coping Theory available within the field of health psychology. It explains that rather than coping with a chronic illness alone and being isolated throughout that process, coping with the illness can be a shared experience between the patient and their immediate friends and family (Helgeson, Jakubiak, Van Vleet, & Zajdel, 2018). Researchers suggest that communal coping can enhance the mental wellbeing of patients and ultimately improve experiences of their illness, and positively improve their adopted health behaviours (Badr & Acitelli, 2017; Basinger, Wehrman, Delaney, & McAninch, 2021; Helgeson et al., 2018). Similarly, Barker and colleagues conducted a meta-synthesis of qualitative literature that investigated the psychosocial impacts of hearing loss on them and their communication partners (Barker, Leighton, & Ferguson, 2017). Authors found that partners who worked to adapt to hearing loss together and vocalised coping strategies together, engaged in aligned coping. Aligned coping was identified as a type of coping that improved the ongoing management of hearing loss, and a more positive experience of living with hearing loss in general (Barker et al., 2017). The CHAI grounded theory matches these findings, as PHL whom adopted the supported coping style identified that feeling supported was integral to coping with

their hearing loss and that this positively influenced their health behaviours. Individuals who adopted supported coping in this study expressed that they became more likely to consult audiologists and adopt hearing aids after the encouragement of their communication partners. This links to motivation theory, as PHL in supported coping style developed motivation to cope with their hearing loss through the influence of others, rather than being motivated from within themselves (Frieze, Boneva, Lee-Chai, & Bargh, 2001; Teixeira et al., 2020). Overall, PHL with this coping style also expressed that they that they better managed their hearing loss through the ongoing support and motivation from others, and thus they reported more stable mental wellbeing.

Acceptance coping and Denial coping relate to the hearing loss literature that explores the complex relationship some individuals develop with their hearing loss. Denial of having a hearing loss or the severity of hearing loss is a feature commonly found within studies that explore the psychosocial experiences of PHL (Rawool & Kiehl, 2009). Denial is the refusal of acknowledging a certain “truth” or condition. The denial of hearing loss was extensively analysed in a literature review by Rawool (2018) which identified the key factors that can lead PHL to deny having a hearing loss and/or their hearing loss experience. She explained that denial manifested as a coping strategy for some PHL to deal with the stress, anxiety, fear, and painful thoughts associated with their hearing loss. Denial of hearing loss was outlined to have different levels, those who completely denied having any impaired hearing were in complete denial, those who minimized the extent of their hearing loss were in partial denial, and those who normalised having impaired hearing due to their age were in partial denial (Rawool, 2018). Short-term denial of hearing loss

could be an appropriate coping mechanism for some PHL to initially minimise the impact of their hearing loss. However, the literature suggests that there are significant long-term disadvantages to denial of hearing loss, as it's been associated with negative impacts on the mental wellbeing of PHL, with ongoing negative emotions being related to their hearing loss such as anger, frustration, and exhaustion (Holman et al., 2021; Vishakha Rawool, 2018). The denial of hearing loss was also found to negatively impact intimate relationships, and in some cases led to divorce, after the breakdown of communication and increased frustration (Andrade, Pereira, & Da Silva, 2018; Piercy & Piercy, 2002; Vishakha Rawool, 2018). This fits very much with the role of denial coping as established in the CHAI grounded theory. Some PHL explained that the process of denying their hearing loss was done to maintain mental wellbeing in their perspective. Although seemingly counteractive, some PHL felt that denying their hearing loss was positive as it minimised the psychosocial impacts that hearing loss could have on them. The feelings avoided included embarrassment, fear of stigma, and shame. And so, some PHL felt they were able to avoid some uncomfortable feelings that could have been strongly experienced if their hearing loss was "found out". Ultimately an ongoing consequence to hearing loss denial was it acting as an obstacle to seeking or adopting auditory rehabilitation services, such as obtaining hearing aids, which could have improved the rehabilitative journey of some PHL (David & Werner, 2016; Vishakha Rawool, 2018).

Conversely, hearing loss acceptance has been outlined as a significant predictor for improved coping in PHL, and that it can aid in increasing the level of adherence to consistent hearing aid usage (Barker et al., 2017; Helvik, Wennberg, Jacobsen, &

Hallberg, 2008; Jerram & Purdy, 2001; Molander et al., 2018). Due to the importance of acceptance in coping with hearing loss, an acceptance-based approach has been recently applied to facilitate psychological treatment for people with hearing loss. (Graham, Gouick, Krahé, & Gillanders, 2016; Mathieson, Watson, & Huthwaite, 2021). The acceptance-based approach emphasises the acceptance of the psychosocial impacts and emotions that accompany the experience of a chronic condition (Graham et al., 2016; Mathieson et al., 2021).

Molander and colleagues in 2018 conducted a study that investigated the impacts of an internet-based acceptance therapy on people with hearing loss, and particularly those with psychological distress related to their chronic condition (Molander et al., 2018). After receiving acceptance therapy that directly discussed experiences of hearing loss, PHL reported improved quality of life and improved coping with their hearing loss (Molander et al., 2018). Ultimately, acceptance of hearing loss has been associated with improved coping and better psychological wellbeing in PHL (Cosh, Helmer, Delcourt, Robins, & Tully, 2019; Dziura, 2017; Humes, 2021; Weisel & Reichstein, 2019). This further emphasises the importance of acceptance coping for people with hearing loss, and it facilitates a better audiological rehabilitative journey and improves feelings of overall mental wellbeing. The emphasis on the role of acceptance and rejection of hearing loss as identified in the CHAI grounded theory can further the understandings of why some PHL choose to reject their hearing loss. These clear distinctions established in the CHAI Theory can potentially facilitate the early detection of these coping styles, both positive and negative, and further patient centred support in audiological practice. As the CHAI grounded theory pertains detailed specifications for each of the seven coping styles, their characteristics can be detected early in PHL's rehabilitative journey. This could also enable audiologists to further

discuss the evident coping behaviours with patients and facilitate an improved relationship with PHL and their hearing loss, and ultimately enhanced coping in everyday life.

6.2.4. Coping with hearing loss

The process of coping has been extensively investigated within the field of chronic health research, with the founders of grounded theory establishing the methodology to explore how individuals cope with terminal illness diagnoses (Glaser & Strauss, 2017a; Glaser et al., 1968). Coping can be defined as the cognitive, emotional, and/or behavioural response to experiencing impactful or aversive conditions/ situations (Petrie & Jones, 2019; Stanisławski, 2019; Wechsler, 1995). The ways in which an individual copes with specific situations has been associated with fight/flight responses, in which an individual can either actively attempt to deal with their situation or attempt to escape the stimuli and ultimately avoid it (Petrie & Jones, 2019; Wechsler, 1995). The onset of a chronic illness can often cause life-altering impacts on individuals, whether this involves learning new techniques for controlling symptoms, or the daily monitoring of bodily functions/ symptoms, in order to facilitate practical coping in everyday life (Petrie & Jones, 2019).

The transactional model by Lazuras and Folkman has greatly informed previous conceptualisations of how individuals cope with their chronic conditions (Lazarus & Folkman, 1984; Petrie & Jones, 2019). The transactional model explains that the process of coping for individuals is influenced by the perceived level of negative impact they view in the situation, and the subsequent resources they have available to cope with the situation (Lazarus & Folkman, 1984). They suggest that individuals cope with this stressful situation through means of regulating their emotions, or

cognitively tackling the situation using a problem-solving focus (Lazarus & Folkman, 1984). Interestingly, within chronic illness research the severity of the chronic condition has not been strongly indicated to have a direct impact on how well individuals cope with their condition (Finkelstein-Fox & Park, 2019; Karademas, 2022; Petrie & Jones, 2019).

It is implied that an individual's self-perception and outlook on their condition can have a great impact on their coping process (Petrie & Jones, 2019). Thus, more contemporary chronic illness studies express that Leventhal's model of Selfregulatory is more relevant and applicable in describing the coping process of individuals (Heffernan et al., 2016; Leventhal, Weinman, Leventhal, & Phillips, 2008; Petrie & Jones, 2019). This model explains that cognitive beliefs an individual develops regarding their illness, can influence their emotions, and subsequently shape their illness-management behaviours. It also theorises that these emotional and cognitive perceptions can influence which coping strategies, if any, an individual selects to deal with the effects of their condition (Heffernan et al., 2016; Leventhal et al., 2008). The self-regulatory model has been outlined as being especially applicable to understanding the experience of individuals with chronic illnesses and how individuals manage their condition in everyday life (Bennett, Saulsman, et al., 2021; Clark, Gong, & Kaciroti, 2001; Hagger, Koch, Chatzisarantis, & Orbell, 2017). Evidently, this model has been applied to understand the experiences and behaviours of populations with differing chronic illnesses (Hobro, Weinman, & Hankins, 2004; Jones, Smith, & Llewellyn, 2016;

Karademas, 2022; Shields, Moons, & Slavich, 2017; Shiyanbola, Unni, Huang, & Lanier, 2018).

Heffernan and colleagues were the first researchers to apply the self-regulatory model to understand the psychosocial experience of individuals with the chronic condition of hearing loss (Heffernan et al., 2016). They conducted semi-structured interviews with 25 participants with a mild to moderate hearing loss to discuss their psychosocial experiences of their condition. Interviews with nine healthcare practitioners were additionally to understand the needs of patients from the audiologist perspective. After conducting qualitative analysis, authors found that participants perceptions of their hearing loss were mainly negative, as PHL mainly associated negative emotions with their chronic condition (Heffernan et al., 2016). Most participants discussed the cognitive and social impacts of hearing loss and indicated that struggles relating to these factors impacted their everyday coping. They concluded that the self-regulatory model was useful and relevant for understanding the psychosocial impacts of hearing loss on adults with mildmoderate hearing loss.

More recently, Bennet and colleagues applied Leventhal's self-regulatory model to understand the impact of hearing loss on individual's coping processes (Bennett, Saulsman, et al., 2021). They conducted two focus groups and two semi-structured interviews with adults who had self-reported emotional distress due to their hearing loss which they disclosed prior to recruitment (N=21). Some communication partners also took part (N=9). The data collected was qualitatively analysed using inductive and deductive thematic analysis. Participants with hearing loss were found to experience emotional distress due to their hearing loss. They outlined that this

emanated from the negative social consequences they experienced in everyday life, which reinforced negative emotions varying such as feeling overwhelmed, emotional fatigue, loss, and exclusion (Bennett, Barr, et al., 2021). Despite this, the self-regulatory model only broadly explains how a chronic illness can impact the health behaviours of individuals (Hagger et al., 2017). The model does not explain the specific factors involved that can influence PHLs thoughts, emotions, and subsequent behaviours of individuals (Coulson, Ferguson, Henshaw, & Heffernan, 2016; Hagger, Wood, Stiff, & Chatzisarantis, 2010). It was previously identified that behaviour-change theories such as the self-regulatory model were not detailed enough to elaborate on the cognitive assumptions and processes existent within the model itself (Sniehotta, Presseau, & Araújo-Soares, 2014), lessening the perceived usefulness of their application. Health psychology researchers outlined the need for investigators to create more theoretical explanations that enable the elaboration of cognitions and emotions, as this could increase their applicability and usability in the field (Hagger et al., 2017; Sniehotta et al., 2014).

The CHAI theory details the significant factors that can influence the mental wellbeing and coping process of a person with hearing loss. It specifies how an individual's hearing loss related characteristics (type/degree), coping styles (both positive and negative), view of themselves and their capabilities (autonomy), and perception of their identity (identity shift), can impact their ability to cope (coping threshold), and ultimately their level of mental wellbeing. This grounded theory specifies processes that influences a PHL's emotions, self-perception, thoughts, and coping styles both for those who manage to cope with their hearing loss, and for those that struggle doing so. The scope and depth provided by the CHAI grounded

theory in explaining how their hearing loss impacts the mental wellbeing of PHL is unique in its specification of the psychosocial experiences of adults with hearing loss. Thus, despite the self-regulatory model aiding research within field of health psychology in explaining the broad integral processes involved in impacting the health behaviour of patients, the CHAI grounded theory identifies factors specific to the experience of hearing loss that influences both the health behaviours of PHL and ultimately how this impacts their mental wellbeing.

6.2.5. Coping Threshold: Mediator of PHL Mental wellbeing

During this grounded theory study that investigated how hearing loss impacted mental wellbeing the construct of mental wellbeing itself was explored. Personalised definitions of mental wellbeing from the perspectives of people with hearing loss were explored to understand how mental wellbeing was conceptualised for this specific population. Four dimensions that expressed what mental wellbeing meant particularly to an adult population with hearing loss included: wellbeing equilibrium, capability, identity maintenance, and managing everyday life. Interestingly, some PHL perceived their mental wellbeing as feeling an internal emotional balance that adequately aided their everyday coping and living with hearing loss. This mental wellbeing equilibrium was characterised by PHL having both negative and positive emotions, as they experienced the ‘ups and downs’ of life, which ultimately created a sense of balance. This equilibrium occurred when any negative emotions were counteracted with positive ones, or when negative emotions were temporary and/or manageable. This conceptualisation of mental wellbeing is similar to that of Dodge and colleagues’

definition (Dodge et al., 2012). Despite the ongoing debate of what mental wellbeing means and the various definitions available (van Agteren et al., 2021), Dodge and colleagues identified a need to establish an accepted definition of mental wellbeing to be able to develop an appropriate tool for measuring wellbeing in psychological practise (Dodge et al., 2012; Wassell & Dodge, 2015). They concluded that mental wellbeing was a process of stabilisation, that is achieved when an individual's available physical, social, and psychological *resources* are balanced against the physical, social, psychological challenges individuals face in their daily lives (Dodge et al., 2012). Their conceptual framework to define mental wellbeing visually represents the construct as a seesaw, with resources on one side, challenges on the other, and wellbeing in the middle. They ultimately defined wellbeing as a point of balance between an individual's resources and the challenges they face (Dodge et al., 2012; Scaria et al., 2020). If the challenges outweigh the resources available then mental wellbeing becomes imbalanced and vice versa (Dodge et al., 2012). There are certain similarities between Dodge's definition, and the definition of mental wellbeing as defined by the participants in this study. Whilst defining mental wellbeing, PHL emphasised that their wellbeing to them meant feeling an *equilibrium* of internal emotional balance. A difference in definitions however is that the equilibrium PHL associated with wellbeing in the present study related particularly to a balance of emotions, both positive and negative. Dodge's definition does not mention the role of emotions in their definitions of mental wellbeing (Dodge et al., 2012), which the current study found to be emphasised by PHL.

Even though the multi-dimensional framework subsequently created by Dodge to facilitate measuring mental wellbeing (Wassell & Dodge, 2015) identified happiness

as one of the seven areas for measuring and subsequently improving mental wellbeing (physical health, happiness, work-life balance, work environment, social support, education, and security) (Wassell & Dodge, 2015). Mental wellbeing is referred to as a general state of happiness rather than the emotional processes involved which can lead to happiness. This multi-dimensional framework ultimately overlooks the role and influence of emotions on regulating mental wellbeing. The current grounded theory suggests that for people with hearing loss, wellbeing equilibrium is impacted and regulated heavily by the emotions they experience in their daily lives. Studies investigating the impact of chronic conditions on wellbeing have identified emotions as playing a central role on regulating it's impacts (Conversano, 2019; Courtwright, Le Pard, & Jones, 2022; Jin, Bhattarai, Kuo, & Bratzke, 2022; Ostir, Markides, Black, & Goodwin, 2000; Parks et al., 2020). Emotions have also been found to play a central role in how individuals view, react to, and live with their hearing loss (Holman, Ali, & Naylor, Heffernan et al., 2016; 2021; Vas, Akeroyd, & Hall, 2017). Studies have identified that hearing loss was related to PHL experiencing negative emotions such as frustration (Heffernan et al., 2016), emotional exhaustion, cognitive exhaustion (Holman et al., 2021), fatigue, anger, and isolation (Holman et al., 2021) . Individuals with hearing loss have also expressed experiencing a decreased ability to connect on interpersonal level with others, which has inhibited their ability to engage in self-expression or feel heard (Barker et al., 2017; Holman et al., 2021). This was ultimately associated with a sense of decreased emotional validity in PHL (Holman et al., 2021).

Additionally, Dodge's definition of wellbeing focuses on the processes through which mental wellbeing can be achieved rather than defining what the construct of metal

wellbeing actually is (Scaria et al., 2020; Wassell & Dodge, 2015). Dodge's definition of mental wellbeing which views wellbeing as the process of balancing resources with challenges, is not explanatory enough for PHL interviewed in this study, as it does not explain specific factors that can alter mental wellbeing. It also does not apply to all the definitions of mental wellbeing provided by participants, as other definitions of mental wellbeing included feeling capable, maintaining their identity, and managing everyday life, which are overlooked constructs in Dodge's definition. On the other hand, the current study includes descriptive definitions of mental wellbeing, that although may only apply to this specific population, has clear explanations of what constitutes as mental wellbeing as constructed by PHL. Thus, this study's recommends grounded theorist to incorporate an aim of understanding what the phenomenon of investigation means to their population sample, regardless of how well established definitions are in the extant future as specific understandings that relate to the novel grounded theory being formed can be established. This practice could lead to deeper insight, understanding of phenomena investigated, leading to a more credible and original theory, whilst also giving participants an extra form of autonomy in providing their own conceptualisation of phenomena.

6.2.4.1. The Coping Threshold

Alternatively, the wellbeing equilibrium definition of mental wellbeing provided by Doge better fits with a central construct of the CHAI grounded theory, the *Coping Threshold*. The coping threshold is a novel concept coined within this study, which defines an individual's personalised capacity to endure and deal with distressing life situations. This is a similar construct to the wellbeing equilibrium, but it is the *process itself* through which the wellbeing equilibrium is either maintained or

becomes imbalanced. The coping threshold was the mechanism which controlled the fluctuations occurring in the mental wellbeing of PHL. The wellbeing equilibrium of PHL remained balanced when the coping threshold remained stable. However, when the coping threshold became exhausted due to distressing factors such as hearing loss, the mental equilibrium became imbalanced, ultimately leading to a sense of decreased mental wellbeing in PHL.

The conceptualisation of the exhaustion of the coping threshold also fits with the notion of burnout which was coined by Herbert Freudenberger in 1974. They used burnout to describe the consequences of physical, emotional, or cognitive exhaustion, that is an outcome of prolonged stress or frustration (Rothenberger, 2017; Scaria et al., 2020). The event of burnout has subsequently been implemented in measures to assess psychological wellbeing (Salles, Cohen, & Mueller, 2014; Zaré et al., 2004), and studies have identified a significant relationship between emotional intelligence and improved psychological wellbeing (Lin, Liebert, Tran, Lau, & Salles, 2016). Studies have also outlined that participants with greater levels of emotional intelligence have less experiences of burnout (Scaria et al., 2020; West, Dyrbye, Erwin, & Shanafelt, 2016). Overall, the contemporary literature that explores mental wellbeing in populations views the occurrence of burnout as the absence of mental wellbeing (Scaria et al., 2020).

These findings fit with how the CHAI grounded theory was designed, with the coping threshold staying stable when hearing loss was adequately managed or coped with. However, the coping threshold became exhausted when coping became too difficult or overwhelming. The exhaustion of the coping threshold meant

that due to the accumulation of ongoing struggles and difficulties coping, PHL experienced exhaustion and their mental wellbeing decreased. Overall, these associations further substantiate the relevance and accuracy of describing the process of coping within the population of people with hearing loss, and the manner in which mental wellbeing can become negatively impacted.

6.2.6. Linking the CHAI Theory with Gaps in Literature

The CHAI theory provides a structured overview of the key areas explored in relation to hearing loss and mental well-being, offering insights into what has been extensively researched and what remains underexplored (see figure 4.8.).

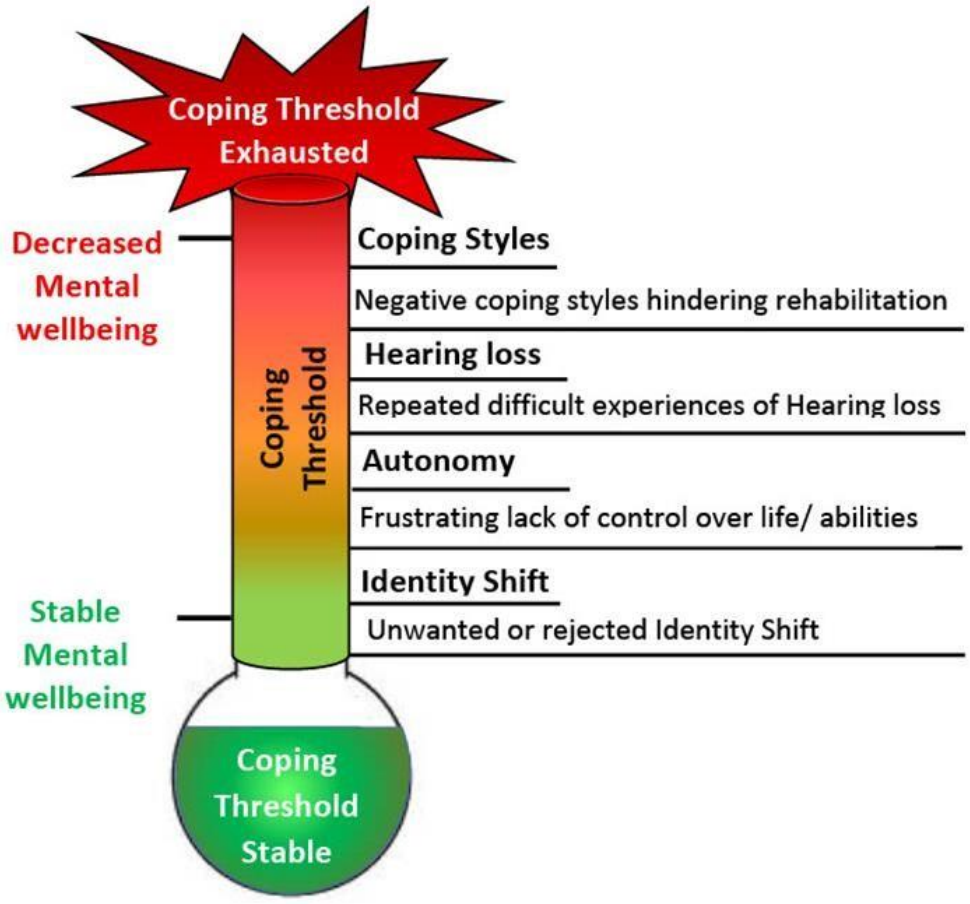


Figure 4.8. The CHAI Theory: A grounded theory explaining the relationship between hearing loss and mental wellbeing

Existing literature has predominantly focused on the direct psychological effects of hearing loss, such as increased rates of depression (Blazer & Tucci, 2018; Rutherford, Brewster, Golub, Kim, & Roose, 2017) anxiety (Contrera et al., 2017; Rutherford et al., 2017), and social isolation (Heffernan et al., 2016; Mick et al., 2014; Weinstein & Ventry, 1982). However, the thematic model developed in this study extends beyond these traditional areas by emphasising identity shift, autonomy, and coping styles, which are often overlooked in research linking hearing loss to mental well-being. Specifically, while previous studies acknowledge coping strategies (Heffernan et al., 2016; Leventhal et al., 2008), there has been limited exploration of how negative coping mechanisms contribute to long-term emotional distress and hinder rehabilitation in PHL.

Additionally, the CHAI theory highlights autonomy and identity shift as critical components in understanding the psychological impact of hearing loss. While research has recognised the stigma associated with hearing loss (Wallhagen, 2010), there is a lack of focus on the frustration stemming from a loss of control over life and abilities, and its connection to hearing loss related mental distress. The grounded theory developed in this study fills this gap by providing a holistic tool to illustrate how individuals with hearing loss struggle with unwanted identity shifts and a perceived loss of agency, which in turn influences their coping threshold and overall mental well-being. Future research should further investigate these underrepresented themes using the CHAI theory, particularly in populations that may be more vulnerable to these challenges, such as younger PHL, and those with sudden hearing loss. By linking these findings to the CHAI theory, this study

provides a broader, more nuanced perspective on the complex relationship between hearing loss and mental well-being.

6.2. Future Research and Implications for Clinical Practice

6.2.1. CHAI: a Comprehensive Theory of the Impacts of Hearing loss on Mental Wellbeing

The CHAI grounded theory provides in-depth insight into the experiences of hearing loss and mental wellbeing. Compared to other theories such as the self-regulatory theory which has been recently adopted to understand the experience of hearing loss, the CHAI grounded theory provides deeper understandings of how and why hearing loss can impact the mental wellbeing of some PHL. It also provided an outline of specific processes that influences PHL. A lack of depth in previous established health theories have been outlined as a major weakness in their practical application. A systematic review conducted by Jones and colleagues to investigate the effectiveness of the self-regulatory inventory in improving adherence behaviours in patients (Jones et al., 2016) found that eight of the nine studies reviewed using the model did not identify any significance to the role of illness perception in participants (Jones et al., 2016). This is problematic as cognitive articulation of an illness is a core component of the self-regulatory model, indicating the model may have poor real-life application.

The CHAI grounded theory however was found to be initially applicable in each of its components to the real-life experiences of participants with hearing loss, and relevant for audiological practice. The grounded theory ultimately acts as an initial, encompassing explanation of how hearing loss can impact mental wellbeing, and

why for some PHL there is no significant impact. Thus, future studies investigating hearing loss and mental wellbeing should apply the CHAI grounded theory and develop it even further when detecting new processes that weren't previously identified.

6.2.2. CHAI theory: a Potential Psychosocial Rehabilitation Guiding Tool in Audiological Practice

The importance of improving audiology psychosocial rehabilitation outcomes for people with hearing loss is emphasised in the current British Society of Audiology practice guidance (British Society of Audiology, 2016). Audiological rehabilitation aims to reduce the participation restrictions a patient may experience due to their hearing loss and aid them to overcome hearing loss' related limitations in everyday life (Aazh & Moore, 2017). With increasing emphasis on patient centred care in audiology, the importance of addressing psychosocial impacts of hearing loss as part of conversations held during audiology appointments has been identified as integral for aiding the patient's adjustment to their impairment, and rehabilitation journey (Grenness et al., 2014; Laird et al., 2020; Reed, 2018).

Evidence suggests that contemporary audiology practice prioritises a technological focus and provision of appropriate assistive hearing device, and that psychosocial concerns are rarely acknowledged or addressed (Bennett, Barr, et al., 2021; Ekberg et al., 2014; Grenness et al., 2015; Laird et al., 2020; Reed, 2018). Within Audiology clinics, audiologists have expressed concerns that they are under-trained, and lack knowledge of how to identify when a participant is in need of psychosocial adjustment conversations in relation to their hearing loss, and when

identified, are unaware of who to make referrals to (Bennett, Barr, et al., 2021; Bennett, Donaldson, et al., 2021).

The CHAI grounded theory model acts as the first grounded theory established that explains how hearing loss can impact the mental wellbeing and everyday lives of PHL. It outlines in detail the primary psychosocial factors that can influence individual's psychological wellbeing and explains why certain health behaviours are adopted or avoided such as the adoption of hearing devices, and hearing loss-specific coping styles. The focus groups conducted in this study evaluating the CHAI grounded theory, lends to its perceived usefulness, relevance, and potential applicability to improving support for PHL's mental wellbeing in audiological practice. The seven coping styles of how individual's cope with their hearing loss were particularly outlined as knowledge that could inform a guide that pertains detailed specifications of PHL coping characteristics. A guide was expressed by clinicians as possibly being useful early in the PHL's rehabilitative journey, as it could enable audiologists to detect which coping type PHL was adopting, and thus facilitate discussions with patients to outline practical solutions for an improved coping with their hearing loss, and ultimately enhance their mental wellbeing in everyday life. Future studies could therefore focus on exploring the seven coping styles even further through interviews with PHL and identify what each type specifically seeks from their audiological rehabilitation. Subsequent studies could also integrate these learnings into established interventions for improving the audiological rehabilitation of people with hearing loss.

Future research should assess the effectiveness of the developed explanatory model in identifying PHL in need of psychosocial health support within audiological settings. Ultimately further work is needed to translate the understandings explicated in the CHAI grounded theory into an applicable resource or guide for audiology clinicians to use in practice. Thus, future studies could also investigate avenues in which the CHAI grounded theory can be translated into a usable resource for improving the awareness of audiologists on the psychosocial impacts of hearing loss, how to detect when PHL are struggling with their mental wellbeing directly due to hearing loss, and ultimately recognise how to aid PHL in their audiological rehabilitative journey.

6.3. Strengths and Limitations of the CHAI grounded theory study

6.3.1. Strengths

Diversity in hearing loss and mental wellbeing experiences

A strength of the current study is that its grounded theory was formed based on a diverse range of experiences of hearing loss and mental wellbeing. As displayed in the participant characteristics table in Chapter 3, participants had various types and levels of hearing loss. PHL recruited also had experienced the onset of their hearing loss at different stages in their lives, with some experiencing hearing loss since birth, others in infancy and others much later in life. This adds strength to the diversity of experiences relating to hearing loss established in this study, with diverse experiences being investigated and represented in the CHAI grounded theory. This adds qualitative rigour to the present which had achieved strategic recruitment as recommended to gain deeper insight when exploring a phenomena (Marshall et al., 2013). Diversity in sample is also a central component particularly

for grounded theory research, and this is often established through theoretical sampling (Conlon, Timonen, Elliott-O'Dare, O'Keeffe, & Foley, 2020), a process that is described in Chapter 2, and addressed in terms of application to the present study in Chapters 3 and 4. This adds strength to the robustness of the CHAI grounded theory, with acknowledgement that it can, and should continue to expand through research to incorporate diverse experiences related to hearing loss and mental wellbeing.

A voice for PHL

The majority of PHL expressed that taking part in this study marked the first instance in which they had verbally expressed the psychosocial impacts of their hearing loss. This led to feelings of gratitude at finally having the opportunity to express their supressed feelings regarding their hearing loss, and truthfully describe the realities of living with their hearing loss without judgement and in an understanding environment with a researcher that acknowledges the psychosocial difficulties that can accompany PHL. The constructivist grounded theory approach applied in this study facilitated greater empowerment in PHL to express their experiences fully additionally as it encouraged participants to express their opinions fully, with no pre-existing research ideologies or agendas being imposed on them (Charmaz & Belgrave, 2012). Additionally using semi-structured interviewing method provided participants the opportunity to delve deeply into their related experiences, where relevant unexpected elements that surfaced where also acknowledged and explored during the interview, utilising open ended questions to allow for the empowerment and freedom of response for PHL (Charmaz, 2014).

Contemporary grounded theorists in varying health-related disciplines agree that the methodological flexibility offered by grounded theory has provided unprecedented insights in their disciplines. For example, grounded theory has been used to develop new policies regarding eating disorders (Faija et al., 2017), and give a voice to silenced victims (Nova et al., 2018; Otake, 2019). The range of topics investigated using grounded theory confirms the ability of the methodology to give a voice to individuals and address topics that are not commonly discussed in their daily lives as established in this study. PHL participants expressing feeling empowered and heard in this study attests to the continued need to explore the impacts of mental wellbeing in hearing loss research as this opportunity is not often in the daily life of PHL.

Quality Grounded Theory

The methodological application of the different processes of grounded theory methodology was applied thoroughly throughout each stage of the current study. This is reflected upon thoroughly in chapter four where the CHAI study is scrutinised against Charmaz' constructionist methodological evaluation criteria, with all criteria successfully being met. The present study also scored 50/50 using the GUREGT when evaluated against the dimensions of the GUREGT tool. Without claiming perfection, the present study was able to apply the grounded theory principles to a sufficient degree that lends to establishing the CHAI theory's credibility, originality, resonance, and usefulness. Importantly, to aid subsequent grounded theory studies both in the hearing loss research and beyond, the present study established 10 principles for achieving grounded theory excellence through the systematic review conducted in chapter two. This guideline will facilitate

improved grounded theory methodological applications if utilised, aiding researchers to be mindful of all principle grounded theory considerations starting at the stage study's conception to its conclusion.

6.3.2. Limitations

Lack of diversity in sample

Several limitations have been identified in relation to the grounded theory study conducted in this thesis which ultimately gives rise to suggestions for future research. Firstly, a lack of diversity existed in the sample of the semi-structured interviews conducted in this study. Thirty-two of the 33 participants were British Caucasians and only one participant came from an Arab background. This a significant limitation of the constructed CHAI grounded theory as experiences of mental wellbeing have been found to be impacted by a person's ethnic background and related psychosocial impacts (Clarke, Colantonio, Rhodes, & Escobar, 2008; Garcia et al., 2020; Lawal, Alhassan, Mogaji, Odoh, & Essien, 2022; Sashidharan & Gul, 2020; Takeuchi & Williams, 2003; Villatoro, Mays, Ponce, & Aneshensel, 2018). Lin and colleagues emphasised that experiences of hearing loss, and access to audiological services is also impacted by a PHL's ethnicity (Lin et al., 2012). This indicates that people with hearing loss from different ethnicities could experience their hearing loss differently, and thus have unique experiences of hearing loss on their mental wellbeing. Future studies investigating the relationship between hearing loss and mental wellbeing should actively recruit an ethnically diverse sample. Future studies could also evaluate and extend the CHAI grounded theory depending on the experiences of individuals from different ethnicities.

Similarly, while the theoretical sampling applied to recruit individuals from different demographic groups did enable the detection of more specific factors that impact the relationship between hearing loss and mental wellbeing there was ultimately an unequal number of participants in each of these groups due to the practical nature of recruitment. Exploring the experiences of more participants in each of the theoretical sampling groups may have provided a wider range of insight regarding variation of experiences of hearing loss and mental wellbeing. It is recommended that future studies recruit more participants in each of these groups when investigating specific theoretical sampling variables in grounded theory studies to allow for better detection of variation in participant experiences.

Potential Bias of Help-seeking Sample

Additionally, due to the sample of PHL primarily being recruited through NHS audiology health services, this method primarily captured help-seekers, meaning that the study predominantly reflected the experiences of those who had actively sought support or intervention for their hearing loss. The potential differences between help-seekers and non-help-seekers, such as varying levels of stigma, coping strategies, or access to resources, were considered during analysis. Some participants discussed delays in seeking help, providing insight into the barriers that non-help-seekers might face. While direct recruitment of non-help-seekers was not part of the initial sampling strategy due to practical and ethical constraints, future research could explore alternative recruitment pathways, such as community outreach or online forums, to capture a broader range of hearing loss experiences.

This limitation is acknowledged in the study, and the findings should be interpreted within the context of a help-seeking population, which may have different attitudes towards coping, identity, and mental well-being compared to those who do not engage with formal hearing services. However, the variability within the helpseeking group—including differences in the timing of help-seeking, the extent of audiological intervention, and personal attitudes towards hearing loss, allowed for a nuanced exploration of how individuals navigate the psychological and social challenges of hearing loss.

Snapshot study: a time-limited understanding of how hearing loss can impact mental wellbeing

Due to limited resources and time constraints the present study collected data using a snapshot approach. A snapshot study involves collecting data regarding experiences of participants only at one instance in time (R. Thomson & Holland, 2003). There are studies that indicate that studying mental wellbeing could benefit from a longitudinal approach, to facilitate the detection of changes in experiences, and enable identifying the underlying processes that impact mental wellbeing with more precision (Alimo-Metcalfe, Alban-Metcalfe, Bradley, Mariathasan, & Samele, 2008; Morgan & Bath, 1998; Ruggieri, Ingoglia, Bonfanti, & Coco, 2021). Grounded theory studies have also been identified as benefitting from a longitudinal approach to allow greater insight and deeper explorations of the development of significant influences (Charmaz, 2006; Godino, Jackson, Turchetti, Hennessy, & Skirton, 2018; O'Connor, Rice, Peters, & Veryzer, 2003). Not adopting a longitudinal study design is anticipated to have limited the extent of understanding how mental wellbeing of people with hearing loss can fluctuate at different points in time. This would have

provided greater explanations in the altering life-situations individual's experience relating to their hearing loss that could have impacted their mental wellbeing. Future studies investigating the relationship between haring loss and mental wellbeing or applying the CHAI grounded theory are recommended to conduct a longitudinal study to detect processes the CHAI grounded theory could not access or explore.

Online focus groups: Loss of interpersonal connections and rapport

The focus groups conducted to evaluate the CHAI grounded theory were conducted online due to the outbreak of COVID-19. I speculate that this may have decreased the possible extent of rapport I could develop with focus group participants. Attempting to build rapport earlier on with the patient focus group, a remote meet and greet session was conducted. However, some PHL seemed less comfortable, and some struggled connecting to the online meeting. The focus groups were scheduled only 1 month after the COVID-19 outbreak in the UK, and so many individuals were not yet used to remote/ online contact and interactions. As more and more qualitative studies are now conducted online, a review of any established guidelines that improve the experience of remote participation and data collection should be reviewed extensively beforehand. Establishing some informal contact with the focus group members on more than one occasion beforehand is also recommended.

The most notable limitation of this study is the limited number of participants involved in evaluating the CHAI grounded theory. Despite four participants in each focus group being an accepted sample size for focus groups (Mason, 2010).

Although this was suitable to begin understanding the relevance and relatability of the CHAI grounded theory, it is recommended that future studies conduct semistructured interviews instead. Conducting longer and in-depth explorations with each participant could enable access to richer data. It would also allow a greater range of perspectives to more deeply assess the credibility and usefulness of a theory.

6.4. Conclusion

This study offers a unique and unpresented insight into the relationship between hearing loss and mental wellbeing. The CHAI grounded theory details in depth different experiences of PHL, outlining how some manage to cope with their hearing loss, and why others struggle. It explicates the coping factors and styles associated that can influence how well PHL cope with hearing loss, whilst outlining the significant factors that can alter mental wellbeing. Although understanding the psychosocial impacts of hearing loss has been predominantly explored within the field since the late 1980's, an all-encompassing grounded theory explaining the various processes and factors involved was not established until the present study.

The CHAI grounded theory could lead to improving the quality of the psychosocial related audiological care participants receive. This novel theory could also provide an initial step in enhancing understandings of the different reactions and impacts PHL deal with and facilitate identifying detailed hearing loss related psychosocial factors, to guide audiologists so they can be better tackled. Future studies could translate the depth of understandings on the impacts of hearing loss on mental wellbeing, as provided by the CHAI grounded theory, and convert these into concrete guidelines or

resources for both audiologists and people with hearing loss alike, and ultimately, establish an improved audiological rehabilitation journey for PHL.

7. CHAPTER 7: REFLEXIVITY: REFLECTING ON MY INFLUENCE ON THIS GROUNDED THEORY STUDY

7.1. Introduction to Chapter

I engaged in a process of reflection throughout the research process of this grounded theory study. At the start of this research study, I kept a reflection diary to monitor my learnings in the early stages as a tool to build my learning and understandings. I used my reflection diary whilst familiarising myself with the hearing loss research and learning the key processes in the field, as this was not originally my area of expertise. I also used this reflective process to reflect on my existing experience of living with a sibling that has severe hearing loss. This was to make clear how hearing loss has affected some members of my family, and contemplate how this has affected my own stance, role, and perspective as the primary researcher in this study. To illustrate this reflective process, I have copied experts from my reflexive diary below to outline how some specific learnings and understandings were developed. Below I also transparently discuss reflections on my background learning of hearing loss that built my understanding of the area before conducting the semi-structured interviews with PHL. I also discuss the influences of my personal relationship with hearing loss, my stance as a qualitative researcher, and how this has influenced my role a constructivist grounded theorist.

7.2. Personal Connection to Impacts of Hearing loss

The topic of this PhD project had been predefined before I was chosen as it's researcher. When I came across the project, I felt connected to it instantly and hoped I could pursue the investigation of understanding the relationship between hearing loss and mental wellbeing. The reason why this topic appealed to me to this extent was because my twin brother, Islam, has a severe hearing loss, and our family and I witnessed how this began to change him. Since we were born my brother was always the cheeky, outgoing one, and I was the more "responsible" one. We lived a turbulent period from infancy through to adolescence which I struggled with. Although Islam must've suffered too, he'd always reassure me with a cheeky smile, and say that we'd find a way through it, and that we always had each other.

We had just turned 18 when my brother developed his hearing loss, and until this day we don't know its cause. Regardless of the reason, this hearing loss has had a lingering impact on most aspects of my brother's life. Islam always had a cheerful and outgoing personality, but this started to change after his hearing loss. He became isolated, and quiet, and less like his previous playful self. He also started avoiding attending family gatherings and saw his friends less.

Interestingly, it was only *after* starting my PhD did I begin to understand the extent to which my brother's hearing loss had impacted many aspects of his life. This research was the spark that ignited direct discussions with my brother regarding his hearing loss. Through these Islam shared details regarding his experience of hearing loss that he had not previously discussed with anyone. He expressed that

his hearing loss severely impacted him whilst studying at university, as despite sitting in the front row, he heard only 30% of the lecture. He also shared that he's become self-conscious whilst interacting with others due to his hearing loss, even with romantic interests, which has deterred him from pursuing some interpersonal relationships.

My personal relation to hearing loss through my brother's experience, is what sparked my interest in conducting this research, and the reason for my preoccupation of wanting to understand how hearing loss impacts mental wellbeing. Another drive was that my brother was always there for me when during difficult circumstances, and I wanted to be there for him now. I wanted to aid Islam in his journey of living with hearing loss, to enjoy life to the fullest, despite these difficulties, as he had done for me when were younger.

Islam's experience of hearing loss did pre-emptively aid me to understand that hearing loss could change a person's wellbeing negatively, however, I didn't have any existing idea as to why. Undertaking this PhD has had a positive practical impact that has helped my brother as he now uses hearing aids! He was initially self-conscious to wear hearing aids at the age of 27 but after relaying the positive impacts of using hearing aids from both academic papers and through my research, Islam was inspired to take this step in his recovery journey. I truly believe that without my PhD being situated in an audiological setting, my brother would have delayed this step for years more, which is another reason I'm grateful for the opportunity to undergo this project. Islam's hearing loss continues to increase, but at least now it's ongoing discussion unlike before, and my brother knows that

despite not having a hearing loss myself, I have a good understanding of what he's going through and a unique perspective to continuously support him, forever.

7.2.1 Essay Published in Nature

During the second year of my PhD, I entered and won an essay competition that was published in *Nature*. The essay entitled '*Beethoven's dream'* discussed the relationship between hearing loss and mental health, referencing both my brother's and Ludwig Van Beethoven's experience of hearing loss (Y. Ali, 2019). I also reflected upon The REGAIN clinical trial (REgeneration of inner ear hair cells with GAmma-secretase INhibitors), which is testing the transformation of new hair cells in humans and could be a possible "cure" for hearing loss.

I'm glad that despite the contest attracting over 600 entries from 68 countries wanting to get published in the international journal's 150th birthday, the topic of hearing loss and mental health stood out to the judges. I entered this competition without informing anyone except my brother, as I gained his consent to talk about his experience of hearing loss, and no one had read the piece except for myself. This was because I wanted my entry to be completely organic and personal, and of course I didn't expect it to do well, let alone win! As a qualitative researcher, having something published in a scientific journal such as Nature seemed impossible, but I pursued it regardless because I believed in the message I needed to convey. I wanted to bring a nuanced understanding to how hearing loss can impact the everyday lives of individuals, and outline that it has done so for centuries now.

Whilst doing background reading for my PhD and researching individuals that had developed a hearing loss, Beethoven stood out to me, due to his young age, and the fact that he was musician. A turning point for my entire PhD was when I found a document called the *Heiligenstadt Testament* which is a letter Beethoven had written to his brother when he was 31 years of age (Beethoven, 1802). In it, he details the severe impacts hearing loss has had on his mental health and life. Beethoven shared with his brother that he contemplated suicide as his hearing loss made his life miserable, filled with depression and hopelessness. I was immensely moved by the Heiligenstadt Testament, reading directly from Beethoven just how much his quality of life deteriorated due to his hearing loss. For a man who had died 195 years ago, his experience of hearing loss and mental health was still incredibly insightful, profound, and relevant, and I wanted him to be heard centuries later.

I wanted to bring these hidden sufferings and impacts in my essay, so that even if only the judges read it, it would have the same paradoxical shift that the *Heiligenstadt Testament* had on me. I wanted to change preconceptions of hearing loss that underestimated the level of its influence and impact on many individuals with hearing loss. The essay's aim was to relay to a wider audience the impacts of hearing loss and showcase how this hidden disability for many is a source for silent suffering. I'm extremely grateful this unexpected achievement occurred, and I hope through this continued awareness that greater empathy and care will be facilitated for people with hearing loss, even if it's with intermediate family members and friends.

7.3 Delving into the World of Audiology

My first experience conducting research relating to audiology, was through a qualitative research assistant role I performed for six months prior to starting the present doctoral study. The project I worked on investigated the usability, relevance and impact of an enhanced mobile learning platform called C2Hear. This was a developed online tool that contained evidence-based multimedia videos and interactive tasks that were aimed to improve knowledge regarding hearing loss and hearing aids, for newly diagnosed PHL, PHL wanting to use hearing aids, which could also be used to inform their communication partners. Study data were collected from eight pairs of a person with hearing loss and their communication partners who used for the first time together. Participants were recorded whilst using C2Hear and they were asked to verbalise their thoughts and reactions to it, following the think aloud technique. My role was to qualitatively analyse these data inductively, and map codes to a health behaviour change model called the COM-B system (identifying how capability, opportunity and motivation can influence a health behaviour).

Working on this project was instrumental in providing me with initial insight into how hearing loss can impact the everyday lives of PHL and the extent to which they can be impacted by mundane circumstances. As the data involved couples that interacted with the informative material and tasks, they commented on how relatable it was, and what tactics they were learning to improve coping. Each feedback was monumental in outlining how factors which I had never considered could impact a

person with hearing loss. For example, if a PHL was wearing a hearing aid in the street, the sound of traffic was often amplified and became distracting.

I also learnt the importance of good lighting, not talking from another room and sitting directly opposite a person can facilitate better lip reading and improved communication for a PHL and CP. These were practical issues relating to living with hearing loss in everyday life that I hadn't been aware despite my own brother's hearing loss. As hearing loss is a hidden chronic condition it can be common to underestimate its impact and how everyday details can influence the extent of communication for PHL. As a communication partner to my twin brother, I felt guilty for this significant overlook and not appreciating how simple things like talking face to face, could make a difference in how well we communicated. I now adopt these communication tactics in my own life whilst interacting with my brother, but also interacting with other individuals with a hearing loss.

Another significant impact in of this role, was it being the first to make me realise the impact hearing loss can have on the relationship between PHL and CP. Participants elaborated on the misunderstandings that would transpire due to decreased communication as a result of the hearing loss. Many PHL vocalised for the first that as their CP lacked empathy, and would assume the PHL was pretending not hear, which deeply hurt them. This was a shocking finding to myself as a CP and enabled me to learn the important lesson that impacts of hearing loss can transcend beyond the visual eye and can have negative interpersonal and emotional impacts also. This was central to beginning my understandings as a researcher in my current study, as it was a significant realisation that hearing loss can impact every aspect of

an individual's world, how they feel, how they interact with others, and how others interact with them. An academic interest was thoroughly established through this experience to pursue these psychosocial aspects relating to hearing loss even further.

7.3.1 Improving Audiological Knowledge

Before conducting this grounded theory study, my research background at the time was predominantly in Psychology, as I had graduated with a Bachelor's in Psychology in 2016 and a Masters degree in Psychology Research Methods in 2017. Although a large component of this project considers psychological aspects such as mental Wellbeing, mood and quality of life, another main component discusses impacts relating to the chronic condition of hearing loss. Therefore, I saw a need to familiarise myself with the topic of Audiology and the process people with hearing loss undergo when attending Audiology appointments. I did this through background reading in the fundamentals of Audiology, talking to Audiologists about their work and learning how to conduct Audiometry tests myself, and finally by conducting observations in Audiology clinics.

7.3.2 Journal reflections

The process of establishing the required of understandings of audiology was somewhat challenging at the start of this research process, as I viewed my lack of audiological knowledge as a disadvantage. In order to document my learning process, I kept a reflective journal which I would write in after different meetings and discussions to reflect on my learnings and developing understandings. Luckily there

was great support and mentorship in the department I conducted my PhD. The colleagues I worked with were encouraging and supportive and engaged in discussions regarding aspects of hearing loss on weekly occasions. These informal discussions fastened my familiarisation and learning process as I was directly recommended relevant articles and material. Below is an expert from my reflexive journal reflecting detailing my forming expectations of how people with hearing loss experience being diagnosed with their discussion after an informal discussion with a colleague:

> *"30/07/2018- My speculation is that this process/ event can have an impact in a variety of ways, but mainly being diagnosed with hearing loss may cause a paradigm shift in which being officially diagnosed with a hearing loss could change how well they thought they could communicate and whether they need hearing aids. For others it may occur as something expected, as some people may have already realised their level of hearing loss based on their own judgements and assessments. Therefore, this is a point in their journey that I must include and explore in my investigation during the interview. It could prove to be a pivotal point in time for both PHL who chose to use hearing aids and those who choose not to."*

There were also weekly audiology related seminars with various experts, and these together with individual meetings with experts in the department facilitated my understandings of the hearing loss research and the different focuses involved were becoming more cemented in my knowledge.

7.3.3 Audiology in Practice

I also wanted to gain Audiological skills in practice. I scheduled to meet with two experienced ex-audiologists that had recently worked within the field. These audiologists explained in detail what occurs within an Audiology clinic and the different types of clinics that patients can attend, such as the initial hearing appointment where the patient's hearing itself is tested to establish if they have a hearing loss, and if so to what extent. A follow-up appointment can be scheduled where hearing aids can be tuned, and thirdly an appointment for the repair of hearing aids.

Importantly, they provided me with audiology training into how to administer Puretone Audiometry Tests (PTA), which is the standard hearing test where the patient wears headphones and hears a series of beeps that differentiate in loudness and alternate between ears, and the person must press a button whenever they hear a sound. The patient's hearing accuracy is subsequently recorded and visually displayed on an audiogram. The second hearing test learned was the Bone Conduction test where a device is placed behind the ear of individuals which can cause the skull to vibrate. The test is useful to further diagnose the type of hearing loss, and locate whether the issue is with the cochlear organ itself (inner ear) or whether there's a blockage in the middle-ear (Katz, Chasin, English, Hood, & Tillery, 2015).

7.3.4 Clinical Observations

The Nottingham Audiology Services runs hundreds of clinics daily, to test individuals' hearing, diagnose their hearing loss, provide hearing aids, and if needed

tune and repair these hearing aids for optimal patient usability. I collaborated with audiologists to further my training in Audiology by attending a number of clinical appointments. I was given the opportunity to sit in on a variety of audiology appointments, each with a different audiologist, and patient in each session.

I attended eight audiology appointments (N=8), seven were with adults with hearing loss (N=7), and one was a paediatric session, with a young person with hearing loss and their parent (N=1). In each session I sat in a corner away from the main interaction itself and took notes using a pen and notebook. I focused primarily on the patient, how they seemed, what emotions they portrayed, their body language, what they chose to share with the audiologist, their primary concerns, and especially any psychological or social issues they discussed. I also observed the nature of the interaction between the audiologist and patient in each session.

Below are the main learnings established after reflecting on the memo notes taken during each Audiology clinic.

7.3.4.1 Overlooked Psychosocial Impact(s)

Within each of the clinics attended, the primary focus was of course testing the patient's hearing and establishing the characteristics of hearing loss. If the patient was prepared to adopt an assistive device, they were recommended to adopt a hearing aid, and fitted with the device within the same session. This overload of actions and information in most cases seemed overwhelming for patients, as they were diagnosed with a hearing loss, taught about the condition, recommended with hearing aids, then taught how to use it, such as how to change batteries, and how to control the volume and the different settings available (depending on the type of

hearing aid provided). Thus, the primary focus of six out of the eight audiologists was the Audiological and technological aspects of hearing loss/ hearing aids. Interestingly, the patients themselves usually discussed the social impact hearing loss had on their quality of life such as not being able to engage in conversations fully and missing out in family gatherings.

Most interestingly four out of the six patients noted how they disliked how their abilities changed before and after their hearing loss and that this caused them to feel disengaged, shut off or feel sad at times. Only two audiologists of the eight listened attentively to these social issues and created an interactive discussion regarding these impacts. These audiologists recommended using certain communication tactics, such as talking in the same room, having good lighting, lip reading and letting others know that they have a hearing loss so they can be accommodated for. It became apparent that the psychosocial impacts of hearing loss that many patients wanted to discuss and gain feedback on how to deal with, were gravely overlooked by most audiologists. An elderly PHL expressed:

"I'm so glad. You'll be doing me a great favour by what you're doing here today. At least I'll become human or half human again." (PHL 2)

Despite PHL 2's comment which implied very low quality of life without the hearing aids, the audiologist did not reply to his comment, and stated she needed to go and fetch the new hearing aids. This was a clear example of technological and audiological prioritisation over the patient's own hearing loss experience.

7.3.4.2 Impact on my own interviewing process

This realisation from the clinical appointments had a profound impact on me during my interviewing process for this research. I wanted the interview to be flexible enough for participants any aspect regarding their hearing loss and mental wellbeing without constraining them by any closed questions of time. I wanted PHL to feel heard, acknowledged and their experiences validated. I used semi-structured interviews to allow for this flexibility and let participants express their experience at the level they wished. This is why some interviews became longer than expected as I gave participants more time, so that they could convey all they needed regarding their hearing loss experience. During these interviews many PHL remarked that the interview they were taking part in marked the first time that they discussed living with their hearing loss, which normally they would hide, avoid, or just deal with their condition silently. The interview process was seen as cathartic for these participants and a chance to share how they truly felt.

A couple of the interviews did become emotional for some participants as they discussed how hearing loss impacted their lives and mental wellbeing. In one instance a participant began crying whilst discussing their depression but wished to continue the interview. I cried along with the participant as I remembered my brother's own struggle. I saw my brother in each participant, which made the interviewing emotional to some degree, yet deeply rewarding. I sincerely appreciate each participant who gave their time and vulnerability in sharing their experience. My supervision team was continuously supportive throughout this process. Also, if I was impacted by was impacted by an interview I had just conducted, being in an

office with a number of kind, supportive, and hilarious fellow PhD students lightened my mood in no time.

7.5 Becoming a Constructivist Grounded Theorist

At the beginning of this grounded theory research, my understandings of grounded theory were purely through my studies of qualitative research methods. My reading of the methodology made me aware that there were three schools of grounded theory and I contemplated deeply on which suited my stance as a researcher the most. My reflection led me to recognise the fact that as my expertise lay in qualitative research, that I don't believe that there is an absolute truth that can be attained by research, but that a construction of what we believe truth is based on assumptions made on the evidence available. I believe that a paradigm shift can occur at any point that could change what we view as "facts". An example of such a factual paradigm shift is the Newton/ Einstein paradigm that I always remember of as a researcher. Newton's laws of motion and gravitation was accepted, celebrated, and had controlled physics for 200 years. However, inconsistencies in the laws were discovered, and Newton's laws were replaced with Einstein's theory of relativity that currently acted as a more comprehensive and accurate explanation. Thus, although I do believe in life there are truths, I believe that it's the role of research to continue pursuing "truth" and it's the role of a researcher to submit to pursuing this truth with rigour and open-mindedness. I also believe in equal collaboration in research between the researcher and participant, and that a balanced power dynamic should be maintained. This is why I connected to the school of constructivist grounded theory and decided to adopt it in my research. To

me constructivist grounded theory has the most balanced approach between the three schools of grounded theory. It strictly follows the central processes of grounded theory as developed in the Classic grounded theory school, whilst also lending on the flexibility and interpretivism of the Straussain school. A constructivist approach is what would enable me to obtain the most comprehensive understanding of how hearing loss impacts mental wellbeing.

I thoroughly enjoyed my role as a constructivist grounded theorist and have come to pertain a deep appreciation in the role it plays to facilitate trustworthy novel understandings. This is an entry in my reflection when I came to understand the beauty of the grounded theory methodology, which I believe was also monumental in situating myself as a constructivist grounded theorist:

"Entry title: The challenges of being a grounded theory researcher and yet the beauty of it. After my last supervision I realised the main difficulties of being a grounded theory researcher. To truly suspend your previous perceptions, predictions, ideas, knowledge, and hypotheses of what you'll find is a lot harder that I thought and easier said than done. Despite being fully aware of the principles of grounded theory, and thinking I was ready to perform them, I've turned out to have thought too much about possible influences on mental wellbeing from the get-go.

It's ironic as I'm trying to be open to the different possibilities and start to think about them beforehand, led to me being too open to my pre-existing ideas which meant I had already crossed the red lined boundaries of grounded theory.

But I now know…

I realise that I need to avoid overly complicating the study and avoid making what I'm looking at too specific. Trying to outline how I can develop a deep grounded theory has taking me further away from its principles. I need to go into the study completing blank, with no preconceptions, and not directly looking at the influence of things like hearing aid users versus non-hearing aid users. This would have to come out in the data first which I would then pursue using theoretical sampling.

I now understand that through the grounded theory I'm on a path of empirical discovery. So, I don't need to use a map or try to find directions. This journey is all about me finding what directly comes from within the data and encountering understandings I may have never known before. And that's the absolute beauty of grounded theory. Although it may feel sometimes like I'm lost during my grounded theory journey, in fact that's a part of the truly grounded exploration process. I need to appreciate each detail during the exploration of each corner and at the end I will arrive somewhere I couldn't have anticipated before. And that is the beauty, the absolute beauty of grounded theory."

7.6. Conclusions

Having a twin brother that has a severe hearing loss whose quality of life continues to be impacted was the main motivation and source of passion for me to undertake this PhD project. This passion also sparked the fuel for raising awareness of the relationship between hearing loss and mental wellbeing that went beyond this PhD such as with the Beethoven's dream essay. My readings, training and clinical observations all played central roles in forming my audiological knowledge. The

clinical observations led to my realisation that psychosocial issues relating to hearing loss were not commonly dealt with in audiology appointments. This then influenced my interviewing process and prioritising patients fully sharing their hearing loss experiences. Following the constructivist grounded theory school was the most suitable fit for my pre-existing qualitative researcher ontology and epistemological stance. Although this is a labour-intensive methodology there is beauty in its process, and the fruit of this labour is very worthwhile. I came to immensely appreciate this methodology and now label myself as a constructivist grounded theorist.

CHAPTER 8: APPENDICES & REFERENCES

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8.2. Appendix A. GUREGT Tool

Main area	Item	Grounded theory methodology		
		Glaser	Strauss and Corbin	Charmaz
Study aim	1	Is the grounded theory study aim presented to generate a theory of patterns of behaviour?	Is the grounded theory study aim presented to develop a well-integrated set of concepts that provide a theoretical explanation of a social phenomenon?	Is the grounded theory study aim presented to construct a theory focusing on examining process and actions?
Philosophical framework	2	Is the grounded theory embedded in any philosophical background? Why and how?	How is the grounded theory embedded in symbolic interactionism?	Is the grounded theory embedded in symbolic interactionism and social constructivism?
The researchers' role	3	Is the researcher's theoretical sensitivity described according to conceptual thinking, level of insight into the research area and ability to generate meaning from data?	Is the researchers' theoretical sensitivity according to theoretical insight, professional and personal experience, described and explained?	Is the researchers' reflective and interpretive stance in a two-way interaction with the participant described and explained?
Data collection	4	Is data collection methods described and explained?	Is data collection methods described and explained?	Is data collection methods described and explained?
	5	Has qualitative or quantitative data collection methods been used? How and why?	Has qualitative or quantitative data collection methods been used? How and why?	Has qualitative or quantitative data collection methods been used? How and why?
Memos	6	Has memos been written throughout the study about concepts and categories and are they used to formulate and generate the theory?	Has field notes and diagramming been written and used throughout the study about concepts and categories and are they used to formulate and develop the theory?	Has memos been written throughout the study about concepts and categories and are they used to formulate and construct the theory?
Sampling procedures	7	Is initial sampling conducted in the beginning of data collection described and explained?	Is open, relational and variational sampling conducted in the beginning of data collection described and explained?	Is initial sampling conducted in the beginning of data collection described and explained?
	8	Is theoretical sampling of the emerging categories and theory from the data collection described and explained?	Is theoretical and discriminate sampling of the emerging categories and theory from the data collection described and explained?	Is theoretical sampling of the emerging categories and theory from the data collection described and explained?
	9	Is the selection of participants	Is the selection of participants guided by	Is the selection of participants
	9	Is the selection of participants guided by theoretical sampling? How?	Is the selection of participants guided by theoretical sampling? How?	Is the selection of participants guided by theoretical sampling? How?
Theoretical saturation	10	Is the reach of theoretical saturation explained according to no new insights relevant for the emergent theory?	Is the reach of theoretical saturation explained according to no new insights relevant for the emergent theory?	Is the reach of theoretical saturation explained according to no new insights relevant for the concepts and categories and the emergent theory?
Analysis and coding	11	Is the coding levels and concurrent process of coding described according to open, selective and theoretical coding?	Is the coding levels and concurrent process of coding described according to open, axial (the paradigm model) and selective coding? And is matrix building and storyline applied and described? How?	Is the coding levels and concurrent process of coding described according to initial, focused and theoretical coding?
	12	Which concepts has guided the specific coding levels and how?	Which categories has guided the specific coding levels and how?	Which codes has guided the specific coding levels and how?
	13	Is the core category identified before conducting selective coding?	Is the central category identified before conducting selective coding?	Is the basic social process identified before conducting focused coding?

	Item	Grounded theory methodology		
		Glaser	**Strauss and Corbin**	**Charmaz**
Review of literature	17	Is the literature reviewed avoided initially in the grounded theory study? Why and how?	Is general literature reviewed initially in the grounded theory study to assist in formulating questions? Why and how?	Is the literature reviewed initially in the grounded theory study to expand the contextual framework? Why and how?
	18	Is the literature reviewed after theory development on the basis of the emerging concepts and theory? How and on what grounds?	Is an extensive literature reviewed performed after theory development on the basis of the emerging concepts and theory? How and on what grounds?	Is the literature reviewed during theory development on the basis of the emerging concepts and theory? How and on what grounds?
Results/ the theory	19	Is the main concern presented and explained?	Is the main concern presented and explained?	Is the main social interactions of the theory presented and explained
	20	Is the core category and the related categories presented and explained?	Are the central category and the related categories, properties and dimensions presented and described?	Is the basic social process and the related categories presented and explained?
	21	Does the theory account for the overall pattern of behaviour in the substantive area?	Does the theory provide a thorough theoretical explanation of the social phenomenon?	Does the theory account for the essential processes and actions in the social interactions of the participants?
	22	Is conceptualization used rather than description using quotes when writing the theory?	Are quotes used and argued for to describe the theory?	Are quotes used and argued for to describe the theory?
Discussion	23	Are the key relationships between the core category and concepts discussed and related to relevant literature?	Are the key relationships between the central category and categories discussed and related to relevant literature?	Are the key relationships between the categories and codes discussed and related to relevant literature?
Evaluation criteria	24	Are the criteria of fit, work, relevance, and modifiability presented and explained?	Are the criteria of validity, reliability and credibility of data presented and explained?	Are the criteria of credibility, originality, resonance, and usefulness, as well as fit, work, relevance, and modifiability presented and explained?
	25	Are the evaluation criteria used to evaluate the theory?	Are the evaluation criteria used to evaluate the theory?	Are the evaluation criteria used to evaluate the theory?

8.3. Appendix B. Systematic Review Search Strategy

Search Database	Initial search Results	Updated search results (March 2020)	Updated search results (August 2021)	Total
Applied Social Sciences Index and Abstracts (1987–current)	8	11	0	19
British Nursing index (1994–current)	8	11	0	19
Cumulative Index to Nursing and Allied Health Literature (1961–current)	56	4	0	60

Global Health (OvidSP database, 1973–current)	0	0	0	0
MEDLINE (Ovid, In-Process & Other Non-Indexed Citations, 1946–current)	40	6	13	59
PsycINFO (1800s–current)	49	4	10	63
PubMed (1996–current)	98	6	24	128
Scopus (1983–current)	57	9	9	75
Web of Science (1899–current)	56	12	8	76
Initial Total	**372**	**63**	**64**	**499**
Duplicates	**249**	**47**	**48**	**344**

Total After duplication removal	**123**	**16**	**16**	**155**

Applied Social Sciences Index and Abstracts (1987–current): 19

((((((((((((((((((MAINSUBJECT.EXACT.EXPLODE("Hearing impaired people") OR MAINSUBJECT.EXACT.EXPLODE("Communication Profile for the Hearing Impaired")) OR su(communication partner*) OR su(audiologist*) OR MAINSUBJECT.EXACT.EXPLODE("Audiology")) AND stype.exact("Scholarly Journals")) AND la.exact("English")) AND stype.exact("Scholarly Journals")) AND la.exact("English")) AND stype.exact("Scholarly Journals")) AND la.exact("English")) AND stype.exact("Scholarly Journals")) AND la.exact("English")) AND stype.exact("Scholarly Journals")) AND la.exact("English")) AND stype.exact("Scholarly Journals")) AND la.exact("English")) AND PEER(yes)) OR ((((((((((((((((MAINSUBJECT.EXACT.EXPLODE("Hearing aids") OR MAINSUBJECT.EXACT.EXPLODE("Cochlear implants")) AND stype.exact("Scholarly Journals")) AND la.exact("English")) AND stype.exact("Scholarly Journals")) AND la.exact("English")) AND stype.exact("Scholarly Journals")) AND la.exact("English")) AND stype.exact("Scholarly Journals")) AND la.exact("English")) AND stype.exact("Scholarly Journals")) AND la.exact("English")) AND stype.exact("Scholarly Journals")) AND la.exact("English")) AND

stype.exact("Scholarly Journals")) AND la.exact("English")) AND PEER(yes)) OR ((((((((((((((su(hearing loss*) OR (MAINSUBJECT.EXACT.EXPLODE("Hearing impairment") OR MAINSUBJECT.EXACT("Noise induced hearing impairment") OR MAINSUBJECT.EXACT("Occupational hearing impairment") OR MAINSUBJECT.EXACT("Sensorineural hearing impairment")) OR MAINSUBJECT.EXACT("Sudden hearing loss") OR su(hearing disorder*) OR su(auditory impairment*) OR su(loss of hearing*)) AND stype.exact("Scholarly Journals")) AND la.exact("English")) AND stype.exact("Scholarly Journals")) AND la.exact("English")) AND stype.exact("Scholarly Journals")) AND la.exact("English")) AND stype.exact("Scholarly Journals")) AND la.exact("English")) AND stype.exact("Scholarly Journals")) AND la.exact("English")) AND stype.exact("Scholarly Journals")) AND la.exact("English")) AND stype.exact("Scholarly Journals")) AND la.exact("English")) AND PEER(yes))) AND (MAINSUBJECT.EXACT.EXPLODE("Grounded theory") AND PEER(yes))) AND (stype.exact("Scholarly Journals") AND PEER(yes))

British Nursing index: 19

((((((((((((((((((MAINSUBJECT.EXACT.EXPLODE("Hearing impaired people") OR MAINSUBJECT.EXACT.EXPLODE("Communication Profile for the Hearing Impaired")) OR su(communication partner*) OR su(audiologist*) OR MAINSUBJECT.EXACT.EXPLODE("Audiology")) AND stype.exact("Scholarly Journals")) AND la.exact("English")) AND stype.exact("Scholarly Journals")) AND la.exact("English")) AND stype.exact("Scholarly Journals")) AND la.exact("English")) AND stype.exact("Scholarly Journals")) AND la.exact("English")) AND

8237 stype.exact("Scholarly Journals")) AND la.exact("English")) AND

8238 stype.exact("Scholarly Journals")) AND la.exact("English")) AND

8239 stype.exact("Scholarly Journals")) AND la.exact("English")) AND PEER(yes)) OR

8240 ((((((((((((((MAINSUBJECT.EXACT.EXPLODE("Hearing aids") OR

8241 MAINSUBJECT.EXACT.EXPLODE("Cochlear implants")) AND stype.exact("Scholarly

8242 Journals")) AND la.exact("English")) AND stype.exact("Scholarly Journals")) AND

8243 la.exact("English")) AND stype.exact("Scholarly Journals")) AND la.exact("English"))

8244 AND stype.exact("Scholarly Journals")) AND la.exact("English")) AND

8245 stype.exact("Scholarly Journals")) AND la.exact("English")) AND

8246 stype.exact("Scholarly Journals")) AND la.exact("English")) AND

8247 stype.exact("Scholarly Journals")) AND la.exact("English")) AND PEER(yes)) OR

8248 ((((((((((((((su(hearing loss*) OR (MAINSUBJECT.EXACT.EXPLODE("Hearing

8249 impairment") OR MAINSUBJECT.EXACT("Noise induced hearing impairment") OR

8250 MAINSUBJECT.EXACT("Occupational hearing impairment") OR

8251 MAINSUBJECT.EXACT("Sensorineural hearing impairment")) OR

8252 MAINSUBJECT.EXACT("Sudden hearing loss") OR su(hearing disorder*) OR su(auditory

8253 impairment*) OR su(loss of hearing*)) AND stype.exact("Scholarly

8254 Journals")) AND la.exact("English")) AND stype.exact("Scholarly Journals")) AND

8255 la.exact("English")) AND stype.exact("Scholarly Journals")) AND la.exact("English")) AND

8256 stype.exact("Scholarly Journals")) AND la.exact("English")) AND stype.exact("Scholarly

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8258 la.exact("English")) AND stype.exact("Scholarly Journals")) AND la.exact("English")) AND

8259 PEER(yes))) AND

8260 (MAINSUBJECT.EXACT.EXPLODE("Grounded theory") AND PEER(yes))) AND

(stype.exact("Scholarly Journals") AND PEER(yes))

Cumulative Index to Nursing and Allied Health Literature- EBSCOhost:

60

((MH "Hearing Loss, Functional") OR (MM "Rehabilitation of Hearing Impaired") OR (MH "Hearing Loss, Partial") OR (MH "Hearing Screening") OR (MH "Hearing Loss, Conductive") OR (MH "Hearing Loss, High-Frequency") OR (MH "Hearing Loss, Noise-Induced") OR (MH "Hearing Loss, Sensorineural") OR "hearing impairment*" OR (MM "Hearing Loss, Central") OR (MM "Hearing Disorders") OR (MH "Hearing Aid Fitting") OR (MM "Hearing Aids") OR (MH "Hearing Aid Care (Saba CCC)") (MH "Hearing Loss, Sensorineural") OR (MH "Hearing Loss, Noise-Induced") OR (MH "Hearing Loss, High-Frequency") OR (MH "Hearing Loss, Conductive") OR (MH "Presbycusis") OR "hearing loss*" (MH "Hearing Aid Fitting") OR (MH "Hearing Aid Care (Saba CCC)") OR (MH "Hearing Aid Care") OR (MM "Hearing Aids+") (MH "Cochlear Implant+") OR (MH "Cochlear Implant Programming") "hard of hearing" OR "people with hearing loss*" OR "Person with hearing loss*" OR "hearing impaired*" OR (MH "Audiologist Attitudes") OR (MM "Audiologists") OR "Audiologist*" OR "Communication Partner") AND (MM "Grounded Theory") OR "grounded theory*".))

Global Health: 0

1. Hearing Loss, Central/ or Hearing Loss, Conductive/ or Hearing Loss, Sensorineural/ or Hearing Loss, Sudden/ or Hearing Loss, Functional/ or Hearing Loss, High-Frequency/ or Hearing Loss, Noise-Induced/ or Hearing Disorders/ or

Hearing Loss, Bilateral/ or Hearing Loss, Unilateral/ or Hearing Loss, Mixed Conductive-Sensorineural/ or Hearing Loss/

2. exp Hearing Loss/ or hearing loss*.mp.

3. 1 or 2

4. Amplifiers, Electronic/ or amplifier*.mp.

5. listening device*.mp. or Hearing Aids/

6. Cochlear Implants/ or Cochlear Implantation/ or cochlear implant*.mp.

7. exp Hearing Aids/ or hearing aid*.mp.

8. 4 or 5 or 6 or 7

9. hard of hearing*.mp.

10. communication partner*.mp.

11. audiologist*.mp. or Audiologists/ or Audiology/

12. exp Persons With Hearing Impairments/

13. 9 or 10 or 11 or 12 14. exp Grounded Theory/

15. grounded theory*.mp.

16. 14 or 15

17. 3 or 8 or 13 18. 16 and 17

Medline Ovid: 46

1. Hearing Loss, Central/ or Hearing Loss, Conductive/ or Hearing Loss, Sensorineural/ or Hearing Loss, Sudden/ or Hearing Loss, Functional/ or Hearing Loss, High-Frequency/ or Hearing Loss, Noise-Induced/ or Hearing Disorders/ or Hearing Loss, Bilateral/ or Hearing Loss, Unilateral/ or Hearing Loss, Mixed Conductive-Sensorineural/ or Hearing Loss/

2. exp Hearing Loss/ or hearing loss*.mp.

3. 1 or 2

4. Amplifiers, Electronic/ or amplifier*.mp.

5. listening device*.mp. or Hearing Aids/

6. Cochlear Implants/ or Cochlear Implantation/ or cochlear implant*.mp.

7. exp Hearing Aids/ or hearing aid*.mp.

8. 4 or 5 or 6 or 7

9. hard of hearing*.mp.

10. communication partner*.mp.

11. audiologist*.mp. or Audiologists/ or Audiology/

12. exp Persons With Hearing Impairments/

13. 9 or 10 or 11 or 12 14. exp Grounded Theory/

15. grounded theory*.mp.

16. 14 or 15

17. 3 or 8 or 13

18. 16 and 17

PsycINFO: 53

(((((((((((((((((MAINSUBJECT.EXACT.EXPLODE("Hearing impaired people") OR MAINSUBJECT.EXACT.EXPLODE("Communication Profile for the Hearing Impaired")) OR su(communication partner*) OR su(audiologist*) OR MAINSUBJECT.EXACT.EXPLODE("Audiology")) AND stype.exact("Scholarly Journals")) AND la.exact("English")) AND stype.exact("Scholarly Journals")) AND la.exact("English")) AND stype.exact("Scholarly Journals")) AND la.exact("English")) AND stype.exact("Scholarly Journals")) AND la.exact("English")) AND stype.exact("Scholarly Journals")) AND la.exact("English")) AND stype.exact("Scholarly Journals")) AND la.exact("English")) AND PEER(yes)) OR (((((((((((((((MAINSUBJECT.EXACT.EXPLODE("Hearing aids") OR MAINSUBJECT.EXACT.EXPLODE("Cochlear implants")) AND stype.exact("Scholarly Journals")) AND la.exact("English")) AND stype.exact("Scholarly Journals")) AND la.exact("English")) AND stype.exact("Scholarly Journals")) AND la.exact("English")) AND stype.exact("Scholarly Journals")) AND la.exact("English")) AND stype.exact("Scholarly Journals")) AND la.exact("English")) AND stype.exact("Scholarly Journals")) AND la.exact("English")) AND PEER(yes)) OR ((((((((((((((((su(hearing loss*) OR (MAINSUBJECT.EXACT.EXPLODE("Hearing impairment") OR MAINSUBJECT.EXACT("Noise induced hearing impairment") OR

MAINSUBJECT.EXACT("Occupational hearing impairment") OR MAINSUBJECT.EXACT("Sensorineural hearing impairment")) OR MAINSUBJECT.EXACT("Sudden hearing loss") OR su(hearing disorder*) OR su(auditory impairment*) OR su(loss of hearing*)) AND stype.exact("Scholarly Journals")) AND la.exact("English")) AND stype.exact("Scholarly Journals")) AND la.exact("English")) AND stype.exact("Scholarly Journals")) AND la.exact("English")) AND stype.exact("Scholarly Journals")) AND la.exact("English")) AND stype.exact("Scholarly Journals")) AND la.exact("English")) AND stype.exact("Scholarly Journals")) AND la.exact("English")) AND stype.exact("Scholarly Journals")) AND la.exact("English")) AND PEER(yes))) AND (MAINSUBJECT.EXACT.EXPLODE("Grounded theory") AND PEER(yes))) AND (stype.exact("Scholarly Journals") AND PEER(yes))

PubMed: 104

(grounded theory*) AND (((((((hard of hearing*.mp.[MeSH Terms]) OR communication partner*.mp.[MeSH Terms]) OR (audiologist*.mp. OR Audiologists/ OR Audiology/[MeSH Terms])) OR exp Persons With Hearing Impairments/[MeSH Terms])) OR (((((Amplifiers, Electronic/ OR amplifier*.mp.[MeSH Terms])) OR (Hearing Aids/ OR listening device*.mp.[MeSH Terms])) OR (Cochlear Implants/ OR cochlear implant*.mp. OR Cochlear Implantation/[MeSH Terms])) OR (exp Hearing Aids/ OR hearing aid*.mp.[MeSH Terms])))) OR (((hearing impairment*[MeSH Terms]) OR (Hearing Loss, Noise-Induced/ OR Hearing Loss/ OR Hearing Loss, Sensorineural/ OR Hearing Loss, Unilateral/ OR Hearing

Disorders/ OR Hearing Loss, Sudden/ OR Hearing Loss, Bilateral/ OR Hearing Tests/ OR Hearing Loss, Conductive/[MeSH Terms])) OR (hearing loss*.mp. OR exp Hearing Loss/[MeSH Terms])))

Scopus: 66

((TITLE-ABS-KEY (hearing AND impairment*) OR TITLE-ABS-KEY (hearing AND loss*) OR TITLE-ABS-KEY (auditory AND impairment*) OR TITLE-ABSKEY (hearing AND disorder*) OR TITLE-ABS-KEY (loss AND of AND hearing*)) OR (TITLE-ABS-KEY (hearing AND aids*) OR TITLE-ABS-KEY (listening AND device*) OR TITLE-ABS-KEY (cochlear AND implant*)) OR (TITLE-ABS-KEY (hard AND of AND hearing*) OR TITLE-ABS-KEY (people AND with AND hearing AND loss*) OR TITLE-ABS-KEY (person AND with AND hearing AND loss*) TITLE-ABS-KEY (hearing AND impaired*) OR TITLE-ABS-KEY (audiologist*) OR TITLE-ABS-KEY (communication AND partner*))) AND (TITLE-ABS-KEY (grounded AND theory*)) AND (LIMIT-TO (LANGUAGE , "English")) AND (LIMIT-TO (DOCTYPE , "ar"))

Web of Science: 68

(TS=(Hearing impairment* or hearing loss* or auditory impairment* or hearing disorder*)) *AND* LANGUAGE: (English) *AND* DOCUMENT TYPES: (Article), OR (TS=(Hearing aid* or listening device* or cochlear implant*)) OR *AND* LANGUAGE: (English) *AND* DOCUMENT TYPES: (Article)), OR (TS=(hard of hearing* or person with hearing loss* or people with hearing loss* or audiologist* or communication partner* hearing impaired people*) OR *AND* LANGUAGE:

8387 (English) *AND* DOCUMENT TYPES: (Article) AND TS=(Grounded theory*)) *AND*

8388 LANGUAGE: (English) *AND* DOCUMENT TYPES: (Article))

8.4. Appendix C: Data Extraction Sheet Template

Please click the link below:

R1- Data Extraction Sheet- Template Final

8.5. Appendix D: Methodological Quality Appraisal

Appendix D- Critical Appraisal of studies

8.6. Appendix E: Debrief Form used for both semi-structured interviews and focused groups:

University of Nottingham
UK | CHINA | MALAYSIA

Faculty of Medicine & Health Sciences
School of Medicine
NIHR Nottingham Biomedical Research Centre
Ropewalk House
113 The Ropewalk
Nottingham, NG1 5DU

Local Services Information Form

Thank you very much for taking part in this study!

We have also included some information for services within Nottingham that you might want to contact if the topics we have discussed today have caused any distress. You can also contact your GP, or in emergency your local emergency department.

Mental Wellbeing Services:

Let's Talk-Wellbeing Duncan Macmillan House Porchester Road Nottingham NG3 6AA Tel: **0115 956 0888** Email: letstalknottingham@nottshc.nhs.uk Website: https://www.nottinghamshirehealthcare.nhs.uk/nottingham-cityand-county- Nottingham City and Nottinghamshire Monday to Friday 8:00am to	Let's Talk-Wellbeing is a service that provides psychological assessment and treatment for what are known as mild to moderate common mental health problems, which 1 in 4 of us will suffer with at some stage in our lives. It is normal to experience changes in your mood and behaviour at times of stress and emotional upset. Your physical health may also affect your mood and stress levels. If these changes continue to affect you, then the Let's Talk-Wellbeing service could help.

5:00pm.	They provide specialised skilled and accredited practitioners who are able to provide psychological therapies (talking therapies) for people experiencing common difficulties including depression, anxiety, panic, phobias, obsessive compulsive disorder (OCD), trauma and stress. You can be referred there via a GP or self-refer to the service.
Community Mental Health Teams (CMHT) Monday to Friday 9am to 5pm Tel: 0115 969 1300 Website: https://www.nottinghamshirehealthcare.nhs.uk/communitymental-health-team-cmht-for-older-people-	They provide care management and general emotional support, as well as specific and other modes of therapy that will help with recovery. Our services are available to older adults over 65 for those with a mental health issue which has a predominantly psychological cause You need to be registered with a GP to use this service. Referrals can also be made by mental health professionals. Appointments are offered at different locations and in the community. Service sites have parking and disabled access.
Wellness in Mind **Website:** https://www.wellnessinmind.org Services can be provided either *face to face* Thursday 9.30am-12.00 (by appointment at reception): Wellness in Mind Nottingham Wellbeing Hub 73 Hounds Gate NG1 6BB *Online*: https://www.wellnessinmind.org/talk-to-us-online/ *Or by telephone*: 0800 561 0073	Wellness in Mind provides information, advice and support for anyone in Nottingham experiencing issues with their mental wellbeing. Wellness in Mind is open to anyone who wants to find out more about mental health and how to improve their mental health and wellbeing. You can talk to Wellness in Mind by phone, online and face to face. They offer support to people experiencing difficulties with mental health and for those who are supporting someone experiencing difficulties.

Trent PTS **Website:** https://www.trentpts.co.uk	Offer a variety of therapies for Low Mood, Anxiety and Depression, Stress, Excessive Worry or Difficulties controlling your emotions, trauma, Bereavement, Psychosexual and Relationship problems. Treatment can include face to face appointments, telephone consultations, guided selfhelp packages and books on prescription. People can self-refer or be referred to Trent PTS.

Hearing Loss Services:

Action on Hearing Loss (Charity) **Tel:** 0333 240 5659 **Website:** https://www.actiononhearingloss.org.uk/how-wehelp/support-and-care/care-and-support-services/ The Ear Foundation, Marjorie Sherman House, 83 Sherwin Road, Nottingham, NG7 2FB	They provide short and long-term care and support services for people who are deaf, deafblind or have hearing loss. Many of the people supported also have additional needs such as learning and physical disabilities, mental ill-health, and/ or autistic-spectrum disorders. Services are personalised to every individual, so people can live everyday life the way they want.
Nottinghamshire Deaf Society Hard of Hearing Social Club 22 Forest Road West Nottingham NG7 4EQ Contact Name: Rachael Ravenlock Tel: 0115 988 7576 E-mail: rachael.ravenlock@nottsdeaf.org.uk Fridays: 10:00am-2:00pm	For people who are hard of hearing/deaf/deafened who want to meet others for information sharing, peer support and socialising.

Hearing Link 23 The Waterfront, Eastbourne, East Sussex BN23 5UZ Call or text SMS: 07526 123255 **Email** helpdesk@hearinglink.org **Website:** https://www.hearinglink.org/	They ensure that people living with hearing loss, their families and friends can find the information they need, the specialist services they require, and the social contact they want in order to live well with hearing loss. Services provided includes a responsive helpdesk with Responder Team having personal experience of hearing loss and they are ready to offer information, guidance and support to help you take your next step – whether you have hearing loss yourself or wish to support someone else. Volunteer networks are also available which provide personal and practical advice both to the individual who has hearing loss and also their family. They do this through visits, letters and emails.
Nottinghamshire Deaf Society Telephone: 0115 9700 516 SMS: 0781 727 5253 Website: http://www.nottsdeaf.org.uk	NDS plays a big part in the lives of deaf, deafened and hard-of-hearing people throughout Nottingham, Nottinghamshire and the East Midlands. Access to a range of tailored information and support services such as welfare benefits advice, training, luncheon clubs and befriending schemes. With a team of British Sign
	Language Interpreters on hand to provide vital support in times of crisis and need, NDS really is a bridge between a hearing and a deaf world. It delivers quality training through their excellent tutoring team. Tutors are qualified and experienced, also Deaf and use BSL as their first language.

The Ear Foundation Tel +44 (0)115 942 1985 general text enquiries 07852 296613 email info@earfoundation.org.uk Our office is open Monday to Friday 9am-5pm	The Ear Foundation provides services which bridge the gap between the clinics where these exciting technologies are fitted and the local community where they are used in everyday life. They Provide: • Family programme: Connect & Communicate • Education programme • Clinical services: Sound Advice • Family and education-focussed research programme Services are provided in a family friendly accommodation in Nottingham, with partners throughout the UK, and internationally, and increasingly via the web.
C2hear This resource was developed at the NIHR Nottingham Biomedical Research Centre in a partnership between the Nottingham University NHS Hospitals, University of Nottingham Link to videos: https://www.youtube.com/channel/UC_CO85ih5H68q5YSxMziidw For more information: http://www.hearing.nihr.ac.uk/research/c2Hearonline	C2hear is an online set of 10 interactive multimedia videos that addresses practical and psychosocial issues about hearing aids and communication. They can help with improving knowledge of hearing aids and communication, bettering hearing aid handling skills, and improving confidence and reassurance in using hearing aids and communicating.

Charities

There are a number of national charities that provide information, support and advice about issues relating to anxiety and other mental health issues.

Samaritans Website: www.samaritans.org For support: Tel: 116 123 Email: jo@samaritans.org Post: Freepost RSRB-KKBY-CYJK, PO Box 9090, STIRLING, FK8 2SA	Samaritans provides confidential and non-judgmental emotional support for people who are experiencing feelings of despair or distress, including such feelings which could lead to suicide. Samaritans are open 24 hours a day and are staffed by trained volunteers. Their website contains detailed information about the emotional support they provide.
Mind Infoline: 0300 123 3393 (Mon-Fri 9am6pm) Website: www.mind.org.uk Email: info@mind.org.uk	Mind provides information and advice on a range of topics relating to mental health, such as information about emotional distress, where to seek help, drug and alternative treatments, and advocacy. Their advice lines and emails are run by specialists.

SANE Website: www.sane.org.uk SANELine: 0845 767 800 (open 6pm11pm every day)	SANE is a UK-wide charity working to improve quality of life for people affected by mental illness. They provide emotional support, help and information for a range of mental health issues via SANELine, textcare and an online support forum (see their website for details).
Anxiety UK Infoline: 08444 775 774 (Mon-Fri 9:30am - 5.30pm) Text Service: 07537 416905 Website: www.anxietyuk.org.uk Email: support@anxietyuk.org.uk	Anxiety UK is a national charity providing direct support services to individuals affected by a range of anxiety disorders - their website has a wealth of resources relating to anxiety.
No Panic Helpline: 0844 967 4848 Youth helpline (for 13-20 yr olds): 01753 840393 Website: www.nopanic.org.uk	No Panic is a national charity which helps people who suffer from Panic Attacks, Phobias, Obsessive Compulsive Disorders and other related anxiety disorders.

Other resources

Below are some other resources that you may find useful:

DocReady Website: www.docready.org	Doc Ready is a website that helps to prepare individuals to make the most out of mental health related GP visits. It helps young people to know what to expect during a GP consultation, plan what to say and record the outcomes of their appointments.
NHS 111	111 is the NHS non-emergency number. This service should be used if you urgently need medical help or advice but it's not a life-threatening situation, or if you need health information or reassurance about what to do next. Google “NHS 111” for more information.
MoodGym Website: www.moodgym.anu.edu.au	MoodGym is a free online program developed by Australian researchers which incorporates cognitive-behaviour therapy for mild depression and anxiety. It has been extensively researched and its effectiveness has been demonstrated in several trials.
NHS Choices Website: www.nhs.uk/pages/home.aspx	NHS Choices provides a comprehensive database of health information for the general public. They provide information on mental health, including information on treatments and strategies you can try, as well as signposting to services in your area.
Living Life to the Full Website: www.llttf.com	Living Life to the Full is an online life skills course that aims to provide access to high quality, practical and user-friendly training in life skills. It was developed using the cognitive-behavioural therapeutic approach, which is often used for treatment of anxiety and depression. The course content teaches key knowledge in how to tackle and respond to issues/demands which we all meet in our everyday lives.