

*Research Paper***Hearing Loss and Cognition: The perspective of healthcare professionals****Kirby Cutajar and Nadine Tabone**

Department of Communication Therapy, Faculty of Health Sciences, University of Malta

Abstract

Age-related hearing loss (ARHL) is one of the leading causes of hearing loss (HL) and among the most significant communication disorders present in the ageing population (National Institute on Deafness and other Communication Disorders, 2018; Saadi and Isildak, 2019). Untreated HL may increase the effect of auditory deprivation leading to increased cognitive decline (CD). This may result in reduced social participation, increased isolation and depression which may contribute towards reduced interest in hearing rehabilitation (Berrettini et al., 2016). The perspective of 21 healthcare professionals with respect to acquired HL and cognition within the local population was investigated. Audiologists, geriatricians, nurses and speech and language pathologists (SLP's) were recruited. The methodology adopted involved online focus groups. A rigorous qualitative analysis outlined similarities and differences in the professionals' viewpoint. The main findings suggested that adapted cognitive assessments which are suitable for clients experiencing HL are highly insubstantial. For this reason, yielding reliable test results may be compromised. In Malta, a lack of interdisciplinarity and the issue of an insufficiently formed pathway for client management was

raised. Stumbling blocks related to the implementation of hearing aids (HA's) were also discussed as inhibiting intervention effectiveness within different local clinical settings. In Malta, professionals adopt strategies which facilitate communication when encountering individuals experiencing HL. However, optimal training with respect to HL and cognition was suggested to be poor within the local context. Consequently, compelling needs for healthcare professionals to increase their awareness in relation to how losses in relation to hearing and cognition are amalgamated to affect the life of the individual have been highlighted. The novelty of this study could inform future studies which may be conducted to examine the relationship between HL and cognition within the local context. Research gaps are discussed and the research questions were formulated in a manner which provides information about HL and cognition in light of the local context as it was observed that local research in this regard is highly lacking.

Keywords. Acquired hearing loss, cognition, cognitive decline, hearing aids, interdisciplinarity.

1. Introduction

Hearing is a crucial sense which helps us understand the world around us (American Speech-Language-Hearing Association (ASHA),...ASHA, 2020). Ageing is highly associated with loss in sensory functioning (known as presbycusis when the hearing ability decreases with age), and CD. Subsequently, ARHL is associated with accelerated CD. A tenth of the 47 million cases of dementia worldwide are reported to be linked to the presence of HL, with ARHL being one of the possible

Correspondence to Kirby Cutajar
(kirby.cutajar.17@um.edu.mt)

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characteristics (Alattar et al., 2020; Chang, 2017; Ferguson, 2020; Johns Hopkins Medicine, 2021).

Cognition involves different components which include memory, language, reasoning, learning, problem solving, conceptualising and executive functioning amongst other general processes, which are based on regional brain functions (Harvey, 2019; Science Clarified, 2022). Age-associated CD is defined as a non-pathological, normative and typical cognitive ageing which differs in extent between individuals (Antonenko et al., 2019; Deary et al., 2009; Konar et al., 2016; Simon, 2020). When considering the numerous changes related to cognitive processing brought about by typical ageing, language, attention and memory are observed to be a hallmark (Hartman-Maeir, 2002; Peele, et al. 2011). The overlap present between cognitive and sensory deficits results in implications during the course of assessment and intervention.

This may include:

1. Difficulties hearing questions being asked vs difficulties understanding the questions due to cognitive challenges experienced.
2. Challenges in communication due to hearing difficulties as opposed to hearing difficulties due to cognitive challenges present.
3. Needs and concerns may be unmet as the client may not understand stimulus questions due to hearing difficulties.
4. The client may have difficulties expressing his/herself due to cognitive difficulties (Hartman-Maeir, 2002; Wolski et al., 2019).

Cognitive deficits are reported to vary as a function of HL and such deficits may be possibly overestimated due to not accounting for sensory acuity (Guerreiro and Van Gerven, 2017; Owsley, 2016). Cognitive stimulating activities have been linked to possible resilience later on in life (Bahar-Fuchs et al., 2019; Bielak, 2010; Simon et al., 2020). Long term hearing deprivation reduces the quality of communication leading to social isolation and dementia (Berrettini et al., 2016; Johns Hopkins Medicine, 2021). Social isolation brought about by HL may contribute towards poor cognitive functioning, memory decline and as a result, further social isolation. Furthermore, the opposite effect has also been recorded (Cartreine, 2020; Cornwell et al., 2020).

Lin and Albert (2014) suggest that mild HL doubles the risk for dementia whilst moderate HL triples the risk for dementia. Subsequently, severe HL increases the risk for dementia by five times. Screening assessments with respect to hearing are reported to prevent accelerated CD (Alattar, 2020; Premier Hearing Centre, 2018). Ensuring that screening results are not compromised by reduced audibility or signal degradation is cardinal. Strategies which rectify the effects of the HL when testing cognition are crucial (Shen et al., 2016; Völter et al., 2020).

Institutionalisation has been linked to possible greater cognitive decline (Ferreira et al., 2016; Harmand et al., 2014; Harsanyiiova and Prokop, 2018). Selection pressure shall also be accounted for since admissions at institutions are observed to include clients experiencing dementia, cognitive impairments and other functional impairments (Gaugler et al., 2007; Wergeland et al., 2015).

Timely identification in cases of HL is crucial. Early HA uptake is reported to delay the diagnosis of CD or dementia (Findlen et al., 2019; World Health Organisation, 2019).

HA use was associated with better cognition (Dawes et al., 2015). A disaccord which remains in effect involves the basis of improvement on cognitive tests following HA implementation (Swain, 2020). Chan et al. (2014) attribute the improvement in scores to a better understanding of stimulus questions. Cognitive benefits have also been attributed to improved cortical functioning and organisation (Glick and Sharma, 2020). Conversely, Lin et al. (2011) and Dawes et al. (2015), suggested that self-reported HA use did not result in higher cognitive test scores. Stigma related to HA's is a prominent limiting factor mainly brought about by visibility of HA's as well as the size. Admitting that there is a problem, seeking help, understanding the use of the hearing device and accepting treatment are amongst the main struggles these individuals experience (Zaitzew, 2016). Memory and cognitive barriers present may limit HA use (Gregory et al., 2020). The relationship between self-management abilities and HA effectiveness is highlighted (Convery et al., 2017; Mahmoudi, 2019). 21% of individuals with moderate to severe HL are reported to have a low efficacy towards HA effectiveness (Boboshko et al., 2018). Poor compliance with respect to HA use has been reported in cases of dementia (Ray et al., 2019). The possible link between HL and cognition reported in the literature has brought about the research questions of this study. The main driving force included studies such as that by Ehrenfeld (Ehrenfeld 2021) who reported that in the

literature an association between HL, Alzheimer's disease and other types of dementia is outlined. Individuals with HL are more likely to develop cognitive difficulties when compared to individuals who do not have a HL. This research still includes a lot of gaps where future research may be implemented. This includes:

1. The causal association between HL and cognition
2. The use of HA's and the prevention or reversal of any harm made to the cognitive domain
3. The role of HL as a modifiable risk factor for cognitive decline (Croll et al., 2020).

Other studies which suggested similar research gaps include Dawes (2019), Douglas (2020), Powell (2022).

Research Questions

Research Question 1:

What are the views outlined by different professionals in Malta with respect to cognitive performance?

Research Question 2:

What are the similarities and differences outlined by different local healthcare professionals in relation to the link between HL and CD?

Research Question 3:

What is the stance of different professionals in relation to assessment and intervention procedures performed in Malta for clients experiencing HL and/or cognitive difficulties?

2. Methodology

2.1. Overview of methodology

A total of 21 participants were recruited for this study following approval from the Faculty of Health Sciences Research and Ethics Committee (Reference number: UREC FORM V_15062020 7215). Non-probability sampling was utilised in order to recruit participants. A thematic analysis was implemented in order to examine

the collected data rigorously through a qualitative data analysis. A thematic analysis involves reading through a data set and identifying patterns in meaning. Eventually, themes are then derived and identified. A thematic analysis is performed as part of a qualitative approach (Delve, n.d). This is defined as being a method of capturing patterns across qualitative data sets (Braun et al., 2019). The research procedures were all carried out online in view of the COVID-19 pandemic at the time. Four online focus groups were conducted: One with each of the different professionals (Refer to Appendix A for a copy of the focus group questions). A set of questions was targeted to all the participants while a separate set of questions was particular to the field of the respective professionals who provide a specific contribution in service provision. Measures which were considered with respect to reliability and validity are outlined below.

2.2. Inter-rater reliability

The extent to which two or more raters agree leads to inter-rater reliability (Anastasi and Urbina, 1997). This was achieved by asking a native bilingual Maltese individual to transcribe a sample of the transcriptions. These were again analysed to conform to the reliability measures (Keyton et al., 2004).

2.3. Face Validation

Face validation involves the assessment of an instrument and suggests whether it is relevant, reasonable, unambiguous and clear. A specialist in acquired communication disorders conducted the face validation exercise (Oluwatayo,2012; Taaherdoost, 2020).

2.4. Reflexivity exercise

The researcher describes the contextual intersecting relationships whilst discussing issues present in a clear and succinct manner (Dodgson, 2019). This was performed when conducting the current study.

2.5. Demographic information

Table 1 below demonstrates the professional field and place of employment of the different professionals, as well as the total number of participants from each field.

Professional field	Total number of participants	Place of employment
Audiologists	6	Acute hospital/Private clinic
Geriatricians	5	Acute hospital/Private clinic
Nurses	5	Long-term care facility
Speech and Language Pathologists	5	Residential homes

Table 1. Professional field of the different professionals

3. Results

Below is a summary of the main sub-themes as well as comments and contributions from different professionals. Throughout this section, the main components mentioned by more than one of the different professionals are mentioned.

3.1. Awareness of the different cognitive components

This study showed that awareness in relation to the different components of cognition was exhibited by all professionals, with audiologists reporting the largest number of different components of cognition and highlighting hearing abilities as being related to the cognitive component. Table 2 illustrates the components of cognition highlighted by the various professionals.

Components of cognition	Audiologists	Geriatricians	Nurses	SLP's
Attention	✓	✓		✓
Behaviour		✓		✓
Concentration	✓	✓		
Environmental awareness	✓		✓	
Executive functioning		✓		✓
Five senses	✓	✓	✓	
Following instructions	✓	✓		
Language/communication	✓	✓	✓	✓
Memory	✓	✓		✓
Orientation	✓	✓		
Problem-solving	✓			
Reasoning	✓	✓		✓
Thoughts			✓	✓
Visuo-spatial skills	✓	✓		

Table 2. Subtheme 1 – Components of cognition

3.2. The impact of ageing on cognitive performance

Results showed that age is not a linear process and therefore, the repercussions of ageing on cognition may not be exhibited uniformly across individuals. However, it was agreed that age-associated elements

impact cognition. Older persons may provide inaccurate responses to questions directed towards them. The reality of social withdrawal, isolation and emotional distress brought about by acquired HL and/or cognitive difficulties was highlighted. Table 3 below provides an overview of the different contributions across professionals.

Impact of ageing on cognitive performance	Audiologists	Geriatricians	Nurses	SLP's
Age is not a linear process and therefore, signs of cognitive decline are not uniform across individuals	✓	✓		✓
Age-associated elements impact cognition	✓	✓	✓	
Confusion	✓	✓	✓	
Emotional distress as a result of acquired HL and/or cognitive difficulties may be present	✓	✓	✓	
Forgetfulness	✓	✓	✓	
Further explanations of procedures may be required	✓		✓	
Limitations related to task execution	✓		✓	
Social withdrawal and isolation may be observed as a result of the impact of ageing on cognitive performance	✓	✓	✓	
Support of relatives is crucial	✓	✓	✓	
The reality of age and selection pressure in residential homes was outlined	✓	✓		✓

Table 3. Subtheme 2 – The impact of ageing on cognitive performance

3.3. Cognitive Screening

The importance of cognitive screening was highlighted together with the reality of reduced professional training in this regard. Reference was made to the importance

of identifying cognitive difficulties before the implementation of HA's. Table 4 below outlines different realities encountered by professionals with respect to cognitive screening.

Cognitive Screening	Audiologists	Geriatricians	Nurses	SLP's
Referred to cognitive screening as ideally being part of the initial assessment	✓	✓	✓	
Not feeling equipped to recognise signs of cognitive decline	✓		✓	
The importance of becoming aware of what is leading to hearing difficulties with reference to the possibility of dementia was highlighted	✓			
Cognitive performance described as a crucial part of the role of geriatricians		✓		
The importance of evaluating cognitive limitations prior to the HA implementation was highlighted		✓	✓	
Further training about cognitive decline and cognitive screening is required	✓	✓	✓	✓

Table 4. Subtheme 3 – Cognitive screening

fact that this could lead to worsening of symptoms of dementia. Reaching a differential diagnosis between HL and cognitive difficulties was given importance. These outcomes are further illustrated in Table 5.

The link between HL and cognition	Audiologists	Geriatricians	Nurses	SLPs
HL and cognition are two inseparable components	✓	✓	✓	✓
Social isolation brought about by HL results in lack of stimulation and impact on cognition	✓	✓	✓	✓
Intervention related to HL often results in observations of improved cognition	✓	✓		
Differentiating between symptoms of HL and cognitive difficulties was given importance	✓	✓		
Link between HL and dementia was outlined with reference to awareness of research papers highlighting this relationship	✓	✓		
Isolation leads to worsening of conditions such as dementia		✓		✓
Timing of intervention which impacts effectiveness was given importance	✓	✓		
The audiological aspect of dementia is not given importance	✓		✓	

Table 5. Subtheme 4 – The link between HL and cognition

3.5. HL and dementia

All professionals agreed that there is a present link between HL and dementia (Table 6).

Language use in cognitive assessments was emphasised as a limiting factor which could result in mis-diagnosis and this in turn warrants the need for more adapted cognitive tests and further professional training.

HL and dementia	Audiologists	Geriatricians	Nurses	SLP's
A relationship is present between HL and dementia	✓	✓	✓	✓
Cognitive assessments often include language use which may limit the client's performance in cases of HL and may lead to mis-diagnosis	✓	✓	✓	✓
Adapted cognitive tests for clients experiencing HL are not routinely used	✓	✓	✓	✓
A lack of confidence in performing audiological screening was expressed			✓	✓
HL is a possible contributing factor towards dementia	✓	✓	✓	✓

Table 6. Subtheme 5 – HL and dementia

3.6. Screening tests and training of professionals

Different professionals made reference to different cognitive tests, as illustrated in Table 7. The reduced interdisciplinarity in the local context and its implications

were also discussed. Screening was suggested to possibly contribute towards outlining certain difficulties.

Screening tests and training of professionals	Audiologists	Geriatricians	Nurses	SLP's
• Abbreviated Mental Test (AMT4)		✓		
• Monreal Cognitive Assessment (MOCA)	✓			
• Mini-Mental state examination (MMSE)				
• Saint Louis University Mental Status (SLUMS)	✓	✓	✓	✓
The need for further training related to the administration of such assessments was highlighted	✓	✓	✓	✓
In Malta, results in relation to cognitive testing are not shared amongst professionals	✓	✓	✓	✓
Screening procedures are crucial in order to flag up certain difficulties	✓	✓	✓	✓

Table 7. Subtheme 6 – Screening tests and training of professionals

3.7. Outlined issues related to the use of HA's

In relation to research question 3, the issues related to the use of HA intervention are outlined below. The below points include a summary attained from the different professionals:

1. Intervention is often delayed leading to reduced effectiveness
2. HA's are often misplaced possibly due to cognitive difficulties
3. Stigma related to the use of HA's is persisting amongst the population
4. The client's self-care abilities influence the successful use of HA's
5. The issue of denial often surfaces when exploring intervention options – clients often deny that they have a hearing difficulty
6. Clients are observed to remark that HA's pose a financial struggle

4. Discussion

When reviewing the cognitive components mainly affected by ageing, attention, language use, memory, and the five senses are amongst the cardinal cognitive components which are impacted (Cadar, 2018; Glitsky, 2007; Jessen et al., 2020; Lumen, n.d). The components mentioned also emerged in the current study as being areas of cognition which are observed to impact individuals within the local context.

Awareness in relation to the fact that age is not a linear process was exhibited by several professionals in this study involving Maltese professionals. The same views were shared by Antonenko et al. (2019), Correia et al. (2018) and Simon et al. (2020) who also highlighted modulating factors which lead to an observed variability in the ageing process. The reality of age-associated elements on the impact of cognition was also highlighted by McPhee et al. (2016) and Konar et al. (2016). Locally, reports that age-associated elements include implications on processing speed, executive functioning and learning were highlighted. Implications on life satisfaction, wellbeing and overall participation were reported.

Professionals with work experience in the local context highlighted the reality of selection pressure. This agrees with foreign research contributions made by

Ferreira et al. (2016), Prince et al., (2013) and Wergeland et al. (2015), whereby admissions at nursing homes are observed to include high rates of persons with dementia as well as high rates of poor functional impairment. Samples from nursing homes were significant in showing that 58.7% of the individuals exhibit cognitive deficits whilst 45.2% exhibit depressive symptoms (Ferreira et al., 2016). Merrill and Moore (2019) suggest that observations of cognitive decline are commonly reported by nurses. It is interesting to note that nurses who participated in the local study highlighted the largest number of different signs of cognitive decline possibly due to the fact that they encounter most clients with cognitive difficulties in nursing homes. This could arise due to the mentioned reality of difficulty with accommodating everyone due to issues with space, leading to selection pressure. Participants who have worked locally suggest that interaction with different individuals often leads to observations of CD. This is also in line with Cordell et al. (2013).

The study also accentuated the need for further training due to its lack during the current times. Reference is made to Lagasse (2020) whereby his contributions highlight the need for further training amongst healthcare professionals.

Golub (2020) reports that an independent association is present between cognition and HL. Subsequently, hearing-related intervention could result in improved quality of life and behaviour (Benatti et al., 2016; Dawes et al., 2015; Glick and Sharma, 2020; Leroi, 2020). In the local and current study, timely intervention and its advantage was highlighted. Chan et al. (2014) argued that the improved performance could possibly be attributed to a better understanding of stimulus questions on cognitive tests, rather than improved cognition. Professionals also referred to this possible reality in the current study as participants commented that professionals need to be aware that clients might have better understanding of stimulus questions due to improved hearing levels. It was reported that professionals may have poor understanding of this reality in Malta. Lin et al. (2011), argued that although HA's could possibly improve cognitive functioning through reduced cognitive load and reduced levels of social isolation, it is worthy to note that individuals with better levels of cognition are more likely to obtain HA's.

In Malta, there is a tendency not to encourage the use of HA's in cases whereby clients have difficulties

caring for themselves. This is often rendered not to be an effective intervention.

Such considerations and their importance during assessment were outlined by the different professionals especially audiologists and nurses. In cases of individuals diagnosed with dementia, self-care abilities were reported to be particularly challenging. Their implications have been discussed in research developed by Convery et al. (2017) and Ritter et al. (2020) whereby the lack of integration of the device into daily life was reported with reference to the inability to remember to use the device. This is also evident in studies including Rapport et al. (2018), Ray et al. (2019) and Oh et al. (2017) with findings which suggest that HL intervention is impacted by severity of HL and possible dementia. This is congruent with the current study and the way professionals attributed importance to the overlap between HL and dementia as well as the cognitive function of the client and the way this impacts the implementation of HA's. Gregory et al. (2020) highlighted positive implications on cognition following successful HA use with the main benefits outlined including reduced disability as well as enhanced independence and communication. This was also referred to in the current study whereby professionals suggested that there is an improved ability to maintain conversation, improved social engagement, as well as improved mental health and orientation to the environment.

Across the different healthcare professionals, reference was made to the relationship between HL and dementia. This was mainly made through reference to literature which suggests this link due to the reduced stimulation individuals experiencing HL receive. This is supported by findings in the literature including Chern and Golub (2019) and Livingston et al. (2020). Their study outcomes suggested that modifiable risk factors account for 40% of worldwide dementias which could possibly be prevented or delayed with the use of HA's being referred to as a possible intervention which reduces the risk for dementia.

The need for adapted and sensitive screening tools was made by Höbler (2018), Jorgensen et al. (2016), Leroi et al. (2019), Shen et al. (2016), Phillips (2016) and Pye et al. (2017). As observed locally, the authors highlighted the reality of language use and acknowledged the use of language in such assessments as being a drawback. The reality that cognitive assessments involve language use was highlighted by audiologists, geriatricians and SLP's. This was considered to be a limiting factor in cases of

HL which could also impact the diagnosis. In the local context, it is observed that at times, these tools are still being used due to the lack of more adapted tests – leading to possible mis-diagnosis.

Professional confidence was given importance whereby it is worthy to note that SLP's and nurses reported limited confidence with respect to performing audiological screening. Khan et al. (2018) reported that nurses tend to refer for audiology services in cases of observed risk factors. Similarly, this practice is also carried out in the local context. With reference to the current study, audiologists suggested that ideally, general practitioners shall administer cognitive assessments in order to facilitate the process of result distribution amongst other professionals as required. The implications of what has been discussed suggests that there is a need for more training in the local scenario. Literature also suggests that training is also highly limited even in other countries. Such training renders the professionals to be more equipped to perform screening tests which could lead to early detection of cognitive and hearing difficulties and which could result in the prevention of further repercussions of such difficulties including a risk for dementia amongst other challenges.

The responses obtained from the different focus groups suggested that timely intervention with respect to HL and cognitive difficulties promotes effectiveness. This is in line with Swain (2020), who suggested that timely intervention promotes better communication, social and emotional wellbeing as well as better cognitive functioning. This study suggested that intervention is often delayed due to the reality of stigma surrounding the topic of HL. This has also been reported by Ritter et al. (2020) who found that HA's are at the centre of stigmatisation. The reality of denial of HL, in turn leading to the resistance of intervention, has been reported in the literature by Rawool (2018) and Said (2017). This also emerged in this study where both audiologists and geriatricians highlighted this concern. In Malta, the reality of the existing stigma surrounding HL is very much a limiting factor for effective implementation.

The use of voice amplifiers by different professionals when working with clients has been outlined in research developed by Bovo et al. (2013) and Fook et al. (2000). Numerous benefits of such tools have been outlined. This includes facilitation of communication through the amelioration of acoustics and the avoidance of challenges related to background noise and distance. These arguments were also brought up during the course

of data collection. The use of voice amplifiers was mainly highlighted by geriatricians with the same benefits being mentioned. Unfortunately, it was reported that locally, the provision of voice amplifiers is highly limited and this was reported to discourage professionals from trying to find a voice amplifier which may be used. Easier access to such tools would have a lot of benefits.

5. Conclusion

The current study explored the perspective of different professionals with respect to HL and cognition. The results strongly exhibited the possible implications of HL on cognition as well as the knowledge imparted by different professionals in this regard. All professionals exhibited awareness of the link between the two components. The awareness that language is a cognitive process and the implications of this interconnection in cases whereby cognition is affected by HL has been exhibited by different professionals. An interesting contribution of the professionals highlighted the fact that age is not a linear process. An awareness of age-associated elements also emerged. The realities of the impact of institutionalisation as well as selection pressure were remarkable in showing that a significant number of clients who reside in a residential home, are usually experiencing cognitive difficulties to a certain extent. Subsequently, the need for further training of different professionals was highlighted, as well as a requirement for more adapted tools for cognitive testing which rectify the implications brought about by HL. This may lead to more reliable assessment outcomes and more effective intervention implementation. The lack of HA acceptance in the local context especially in cases of co-morbid cognitive difficulties was discussed. For this reason, professionals adopt several strategies to encourage more effective communication. Furthermore, increased interdisciplinarity has been reported to be required together with the importance of having a formed pathway for the management of these clients. Increased interdisciplinarity would contribute towards:

- Equipping professionals with a holistic perspective throughout the course of assessment and intervention which could yield more effective outcomes and lead to comprehensive holistic records
- Interdisciplinarity could also lead to increased patient satisfaction
- Duplication of assessments is reduced through interdisciplinarity across professionals whereby

assessments which have already been administered by a particular professional, are not re-administered by another professional

The above factors shall therefore be taken into consideration due to their array of implications. Within the local scenario, local arrangements could be suggested by:

- Having easier access to assessment results
- Increased communication across professionals through platforms which facilitate this process
- Encouragement of further holistic approaches shall also be promoted following its lack in the current times
- Further provision of training across healthcare professionals with regards to screening assessments shall be provided in the hope that professionals would be further equipped to work with different clinical groups whilst considering the client holistically.

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8. Conflicts in interest

The authors report no conflicts of interest.

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Appendix A: Focus Group Questions

General Questions – Applied for all professionals :

1. In your view, which are the components of cognition?
2. During your practice, do you observe the impact of ageing on cognition when meeting and communicating with elderly clients (60 years +)?
3. If the answer is 'yes', in what way?
4. In your opinion, is there a relationship between hearing loss and cognition? If so, what is it?
5. From your viewpoint, do you feel that you are informed enough about cognitive performance?
6. From your standpoint, do you think that a connection is present between hearing loss and possible dementia?

Audiologists :

1. Do you believe that audiologists are well equipped to recognise signs of cognitive decline amongst the elderly population?
2. From your standpoint, does cognitive testing fit in the audiologic battery?
3. In your opinion, shall particular measures be taken when testing cognition in individuals with hearing loss (even if cognition is tested by other professionals)? If so, what are these?
4. From your experience, are cognitive screening test results elicited by other professionals used by audiologists? If so, can you share how?
5. Do you feel that you are well informed about the implications of hearing loss on cognition?
6. From your experience within the field of audiology, do you think that intervention may be provided in a specific way to encompass both hearing loss and cognition?

Geriatricians :

1. From your perspective, can the benefits of clinical interventions be evaluated through cognitive screening tests which compare results prior to and after intervention is administered?
2. Are cognitive tests such as the Mini Mental State Examination (MMSE) widely used when working with elderly clients?
3. During your practice, do you feel that implications on cognition are observed in cases of hearing loss?
4. Do you adopt any strategies which may enhance communication when encountering elderly clients experiencing hearing loss and cognitive difficulties?
5. How does the ageing population respond to the use of hearing aids? Are there any issues and difficulties which limit the use of hearing aids?
6. From your standpoint, do you feel that improvements in terms of cognitive-communication are observed when intervention with respect to hearing loss is administered effectively?
7. From your viewpoint, are ototoxic medications prescribed with caution?

Nurses :

1. From your experience, what are the signs of cognitive decline in elderly patients?
2. From your viewpoint, what is the impact of hearing loss on communication and understanding? What are the implications of this when communicating with elderly clients ?
3. In your opinion, do you think that more information should be made available about the implications of hearing loss on cognition?
4. Do you encounter a considerable amount of elderly clients who are experiencing hearing loss?
5. In your opinion, are nurses confident in performing an initial hearing assessment?

Speech and language pathologists :

1. In your opinion, are Speech and Language Pathologists equipped to perform audiological screening?
2. From your viewpoint, is cognition given importance by Speech and Language Pathologists during the course of assessment and intervention of speech/ language/communication difficulties?
3. Do you feel that there is a relationship between cognition and language?
4. From your experience, during the assessment of cognitive-communication difficulties, is hearing loss given importance?