

# Reducing loneliness in New Zealand by preventing and treating hearing loss



Loneliness New Zealand

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Tēna koutou katoa,

## **Reducing loneliness in NZ by preventing and treating hearing loss**

The high prevalence of prolonged loneliness is a problem both within New Zealand and around the world. Loneliness New Zealand is committed to both highlighting this problem *and* discovering solutions for those experiencing loneliness. To pursue this goal, we mined the data from our Loneliness NZ Post-Lockdown Survey 2020. From this analysis we discovered that for some demographic groups in New Zealand hearing loss has a strong association with loneliness.

This finding was significant since both loneliness and hearing loss reduce the wellbeing of many New Zealanders. In any four-week period, about 657,000 New Zealand adults aged 15+ experience loneliness, most, or all of the time (1); whilst about 880,000 New Zealanders have hearing loss (2).

The association between hearing loss and loneliness opened the possibility that by preventing and treating hearing loss we could concurrently reduce the prevalence of loneliness in New Zealand. Given this possibility, we sought to examine the link between hearing loss and loneliness in our population. We find that the prevention and treatment of hearing loss is likely to become an important prevention and intervention for loneliness – thereby avoiding the negative health consequences associated with loneliness.

Fortuitous timing of the “World report on hearing” released by the World Health Organisation (WHO) on 3 March 2021 confirms our findings that hearing loss contributes to loneliness, and at all ages. WHO reinforces that hearing loss can have important implications for the psychosocial and cognitive health as well as a negative impact on personal relationships for both the person with hearing loss as well as their communication partners.

In preparing this report, we have utilised our Loneliness NZ Post-Lockdown Survey 2020, which was undertaken prior to the New Zealand election campaign in July 2020 (during Alert Level 1). We are grateful to Horizon Research for constructing demographic measures, administering the survey, weighting the survey results, and providing us access to their analysis tools. We thank you for your generous support. Further, we are grateful to those New Zealand and Australian academics and stakeholders who reviewed drafts of this report and provided feedback.

Ngā mihi nui



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**Trustee, Loneliness NZ**

***“Conquering Loneliness in New Zealand”***

## Context

This report has been prepared to examine the link between hearing loss and loneliness in New Zealand. We consider what is the relationship and strength of association, which demographic groups are particularly potentially at risk of loneliness due to hearing loss, and how the understanding of the relationship between hearing loss and loneliness can be used to reduce loneliness in New Zealand.

The subjective nature of loneliness can be a complex, multifaceted problem that may be difficult to prevent and treat on its own. We look for some practical ways of concurrently increasing physical hearing and social connectedness.

We recognise that any benefits of preventing and treating hearing loss that also reduce or eliminate loneliness caused by hearing loss, potentially accrue to both the person with hearing loss and those with whom they interact.

## Author

The author of this report is a Trustee of the Loneliness New Zealand Charitable Trust ('Loneliness NZ'):

**Dr Scoular** is currently an independent consultant. Prior roles include being a consultant of McKinsey & Company, the COO of a technology company, a founding partner of Partners in Performance (UK), an Executive Director of Ernst & Young, an Associate Director of SBC Warburg, a senior executive of Fonterra (reporting to the CFO), a software entrepreneur, and a cornerstone shareholder in a back-office finance company. He holds a PhD from the University of Cambridge. Dr Scoular has prepared several submissions to Government on the issues of wellbeing and loneliness.

## Loneliness New Zealand Charitable Trust

Loneliness NZ is a charity dedicated to conquering loneliness across the entire population and all demographic groups in New Zealand. Our vision is for New Zealanders to have improved wellbeing and life satisfaction with high meaningful social connectedness amongst ourselves, in our various communities. We consider a wide-range of factors associated with loneliness, with our goals focused around supporting those already experiencing loneliness in their lives, upskilling people to prevent themselves and others becoming lonely, and giving New Zealand a focus on conquering loneliness. We encourage the translation of research into practice, achieving the best social connectedness outcome in New Zealand.

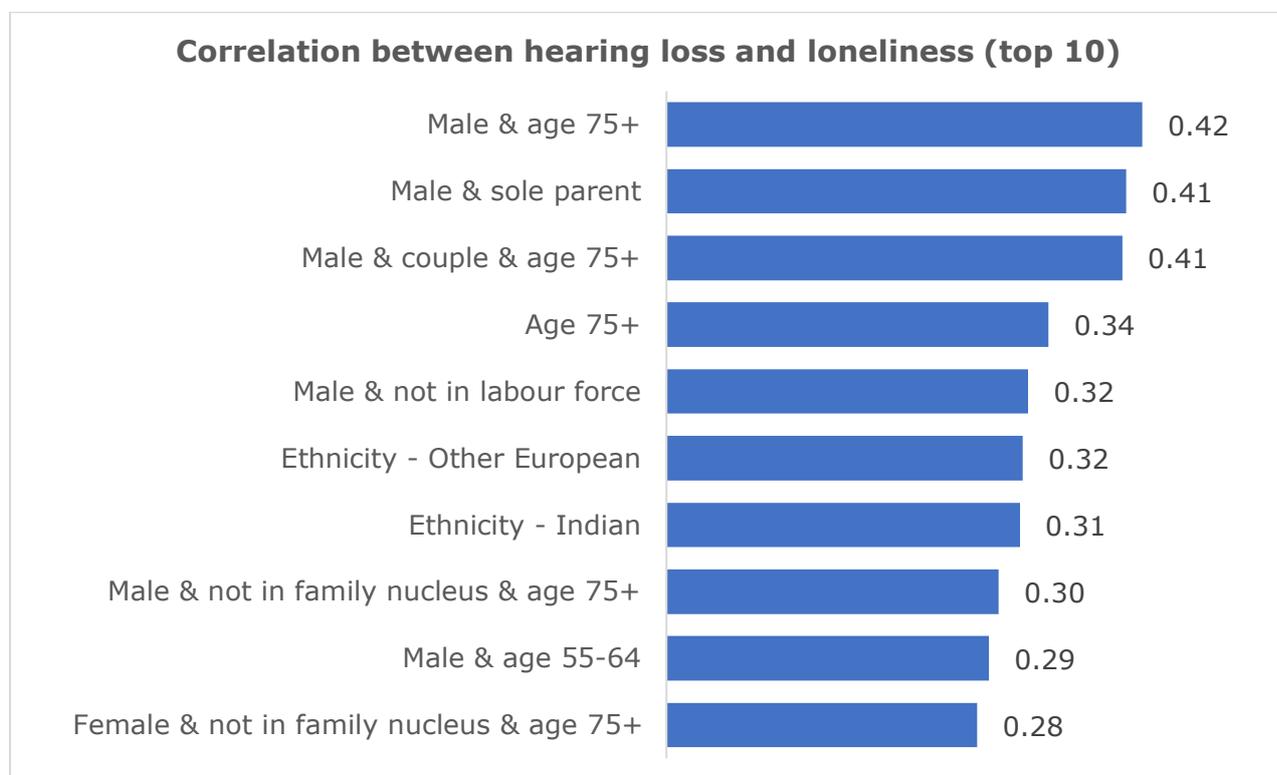
## Contents

<b>1. Key findings and recommendations.....</b>	<b>4</b>
<b>2. Relationship between hearing loss and loneliness .....</b>	<b>7</b>
<b>3. Demographic groups more at risk of loneliness caused by hearing loss .....</b>	<b>11</b>
<b>4. Reducing loneliness by preventing and treating hearing loss.....</b>	<b>16</b>
<b>Appendix: Extracts from WHO “World report on hearing” .....</b>	<b>17</b>
<b>References .....</b>	<b>21</b>

## 1. Key findings and recommendations

The key findings of the report are:

- In New Zealand specific demographic groups are potentially at higher risk of loneliness from hearing loss. There is a strong association between hearing loss and loneliness for adults aged 75+ (especially men), male sole parents, male adults not in the labour force, and specific ethnicities.



- For adults aged 75+, we find the prevention and treatment of hearing loss is likely to be an important prevention and intervention for loneliness – especially for men.
- Extending these findings to the population as a whole, prevention and treatment of hearing loss is likely to become an important prevention and intervention for loneliness.
- in those circumstances where hearing loss can be prevented or treated, individuals, whānau, and society are likely to receive the collective benefits of better hearing, better social connections, and reduced loneliness.
- Since hearing loss is associated with neurocognitive disorders, depression, anxiety disorders, psychoses, and reduced quality of life (3) – all which can increase a person’s experience of loneliness – preventing and treating hearing loss may reduce the prevalence of some of these conditions, as well as loneliness.

## **Recommendations**

On the basis that we seek to reduce loneliness by increasing social connectedness for those people who currently have or will have hearing loss (and those they interact with) we:

- Encourage the call to action of the World Health Organisation's first-ever "World report on hearing" (see Appendix).
- Look forward to the fulfilment of the government's pre-election promise of investing \$28 million over four years towards adult Cochlear implants (5).

We further recommend these following strategies which will facilitate better health outcomes and social connectedness for our wider population:

### **Prevention**

- Increasing focus on the prevention of hearing loss, at work, at home, and elsewhere. Protective factors identified in the WHO report (4) include promoting breastfeeding, good ear hygiene, healthy lifestyles, good nutrition; avoiding loud sounds, loud noise, and tobacco; and protecting against head or ear injury.
- Ensuring full adoption of the [WorkSafe guidelines](#) to prevent noise-induced hearing loss.
- Implementing noise control legislation for public and entertainment venues.

### **Screening and testing**

- Screening for hearing loss not only for new-born babies and infants as well as pre-school and school-age children, people exposed to noise or chemicals at work, people receiving ototoxic medicines, and older adults.
- Clinical testing for hearing loss when people report experiencing loneliness to a health professional.

### **Treatment**

- Elevating the importance of treating hearing loss when patients with hearing loss report feeling lonely.
- Assisting the hearing impaired to follow through with audiological recommendations such as hearing aids and implants.
- Increasing the funding of treatments for hearing loss, including medicines and surgery; hearing aids; cochlear, middle-ear, and bone conduction implants; rehabilitative therapy; sign language access; hearing assistive technology; and captioning services.

- Increasing the affordability and accessibility of hearing aids in New Zealand, for example, through pooled procurement (like in the UK) and/or over-the-counter hearing aids (which is prioritised by leading health agencies in the USA). Hearing aids typically cost between NZ\$1,500 and NZ\$8,000. This compares to US\$500 to US\$3,000 for hearing aids in the United States (or an average US\$4,700 for bi-lateral hearing aids), and as little as US\$50 for hearing aids in India (4).
- Fully funding fit-for-purpose hearing aids for work-related hearing loss (via ACC).

### **Health promotion**

- Increasing education for young people of the risk and consequences of hearing loss for themselves and others that can come, for instance, from listening to music at loud intensity.
- Increasing education on the importance of seeking treatment when hearing loss first occurs.
- Encouraging those with hearing aids to use them in social situations.
- Promoting the social acceptance of hearing aids and implants to encourage their use.
- Educating people on of the importance of allowing more time when talking with those with hearing loss so you can both meaningfully connect.
- Educating the population from an early age, as well as all front-line health practitioners, in our third official language - sign language - so we have many more people able to contribute to good communication whether they are the person with hearing loss or the communication partner.

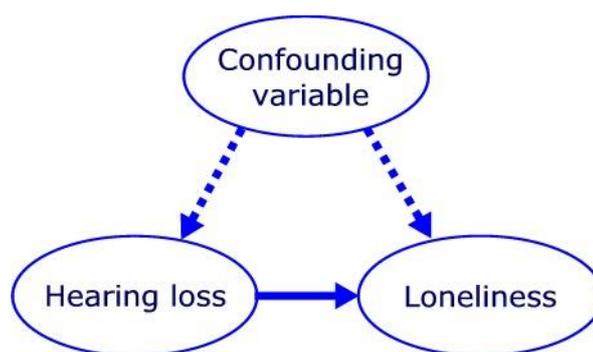
The findings and recommendations in this report are consistent with our understanding of loneliness. Loneliness is an emotional state that arises from not having the desired sufficient meaningful connections with others – those people you could rely on in time of need. We make meaningful connections by communicating. An important component of communication is listening via hearing. With hearing loss, the ability to communicate and therefore make and retain meaningful connections is diminished – which can lead to loneliness.

## 2. Relationship between hearing loss and loneliness

In this section we examine the causal relationship and strength of association between hearing loss and loneliness in New Zealand.

### 2.1 Causal relationship between hearing loss and loneliness

Loneliness is a subjective emotional state, and there is no evidence to believe that loneliness may cause physical hearing loss. We therefore postulate an integrated causal model for the relationship between hearing loss and loneliness.



In this integrated causal model, hearing loss may cause loneliness, a confounding variable (such as accident, illness, or old age) could jointly cause hearing loss and loneliness, or the confounding variable could cause hearing loss and (together with the hearing loss contribution) also cause loneliness.

Statistical analysis of survey findings can determine the strength of association between hearing loss and loneliness. Given the complexity of the integrated causal model, however, the statistical analysis can not determine whether the association is due to the hearing loss to loneliness pathway, the confounding variable pathways, or a combination.

We now provide some background on the survey we have undertaken to determine the strength of association between hearing loss and loneliness.

### 2.2 Loneliness NZ Post-Lockdown Survey 2020

In our first report [Prolonged loneliness in New Zealand, before, during, and after lockdown](#) (6), we examined the incidence of prolonged loneliness across New Zealand demographic groups before, during and after the first New Zealand lockdown using the Stats NZ General Social Survey 2018, Victoria University Life under Lockdown Survey 2020, and our Loneliness NZ Post-Lockdown Survey 2020.

In this report, we use survey results from our Post-Lockdown Survey 2020. The Post-Lockdown Survey is a loneliness survey conducted in week 5 of Alert Level 1 (between

14 July and 19 July 2020). The survey was administered by Horizon Research using adults (18 years and older) living in New Zealand. There were 1,764 respondents in the final survey.

### *Loneliness Question*

The survey replicated the preamble and loneliness question from the Stats NZ General Social Survey 2018, and replicated many of the demographic categories. The survey's loneliness question asked respondents to self-report their loneliness along a five-point Likert scale:

"People who have contact with family and friends can still feel lonely sometimes, while those who have little contact may not feel lonely at all.

In the last four weeks, how much of the time have you felt lonely?

- A. None of the time
- B. A little of the time
- C. Some of the time
- D. Most of the time
- E. All of the time"

### *Hearing Question*

Self-reported assessments of hearing have been found to correlate well with hearing loss measured by pure-tone audiometry (7). Therefore, the survey's hearing question asked respondents to self-report their hearing (even if using a hearing aid) along a four-point Likert scale:

"Which of these things do you have difficulty with because of a health issue, if any:

Hearing, even if using a hearing aid

- A. No – No difficulty
- B. Yes – Some difficulty
- C. Yes – A lot of difficulty
- D. Cannot do at all"

## **2.3 Methodology**

Our methodology assesses the strength of the association between the responses to the loneliness and hearing questions using the unweighted Spearman rank correlation coefficient. We considered using either the standard (Pearson) correlation coefficient or Odds Ratio, and found them not to be suitable for our data.

The Likert scale represents an ordering: B comes after A, C comes after B, etc; or, alternatively, A comes before B, B comes before C, etc. Instead of letters, we can use numbers to represent the ordering. So A → 1, B → 2, C → 3, etc. Numbers, however,

can represent both order and, if one chooses, distance. If we knew for each Likert scale that the distances between the points were equal, then we could use the standard (Pearson) correlation coefficient to determine the strength of the association between hearing loss and loneliness. However, for the loneliness and hearing loss questions, we do not know that the distance between the ordered points on the Likert scales is equal.

Furthermore, the Odds Ratio is not a suitable measure, as it is used to assess the strength of association between binary responses such as: hear/not hear versus lonely/not lonely.

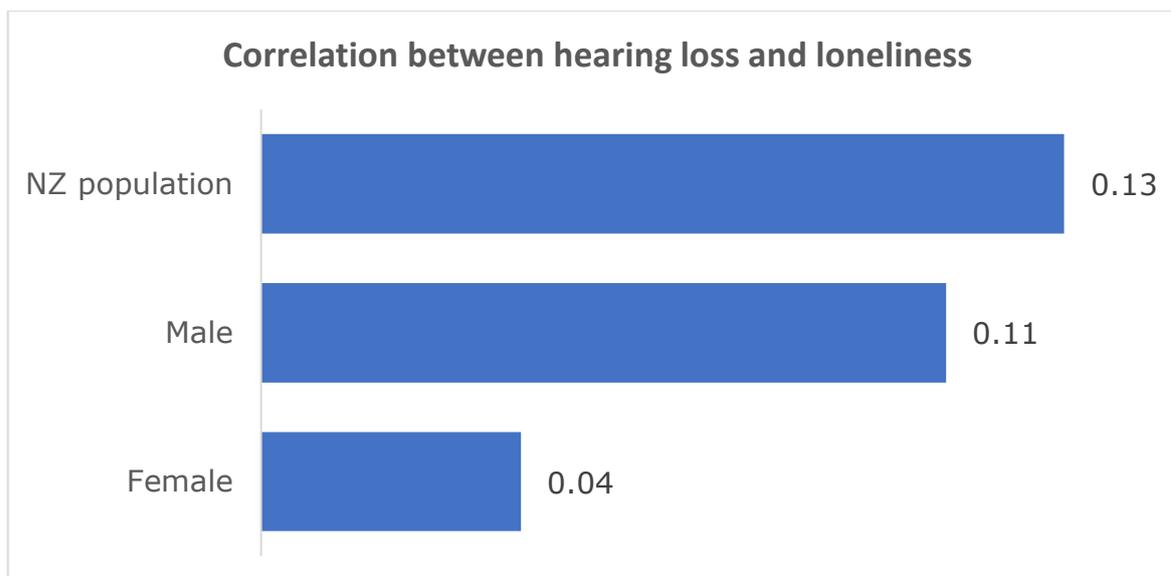
Given the more indepth information provided by the two Likert scales, we use the Spearman rank correlation coefficient to gain a more robust and indepth understanding of the association. The standard (Pearson) correlation  $r$  determines the fit to a linear function. If  $r=1$  the relationship is an always increasing linear function, if  $r=-1$  the relationship is an always decreasing linear function, and if  $r=0$  there is no correlation. On the other hand, the Spearman rank correlation coefficient  $\rho$  (which we use) determines the fit to a monotonic function. If  $\rho=1$  the relationship is an always increasing monotonic function, if  $\rho=-1$  the relationship is an always decreasing monotonic function, and if  $\rho=0$  there is no correlation.

In our first report (6), sample weights were applied to the survey to derive nationally representative estimates. However, there is no commonly accepted weighted Spearman rank correlation coefficient (8). Therefore, we have used the unweighted Spearman rank correlation coefficient in this report. Whenever we refer to a correlation coefficient in this report, we are referring to an unweighted Spearman rank correlation coefficient.

## **2.4 Strength of association between hearing loss and loneliness**

For the New Zealand population as a whole, the correlation coefficient between hearing loss and loneliness is 0.13. This *positive* correlation is robust across demographic groups. We examined 94 demographic groups and 89 of them had a positive correlation coefficient and only five had a negative correlation coefficient.

While a correlation coefficient of 0.13 may sound small, it is significant for a complex phenomena like loneliness – where there are many variables in play. What is particularly insightful, as we will see in the next chapter, is the demographic groups where the association is much stronger.



As the graph shows, there was a large difference in the correlation coefficient between hearing loss and loneliness for males (0.11) and females (0.04). This was consistent across demographic groups. We examined 30 male and 30 female matching demographic groups and 25 of the 30 pairs had the male correlation coefficient greater than the corresponding female correlation coefficient.

This finding is different to international research. Two international studies have examined the association between hearing loss and loneliness by gender (9,10). The first study found a higher positive association between hearing loss and loneliness for women than men (9). The second study found that there was a positive association between hearing loss and loneliness for women but not for men (10).

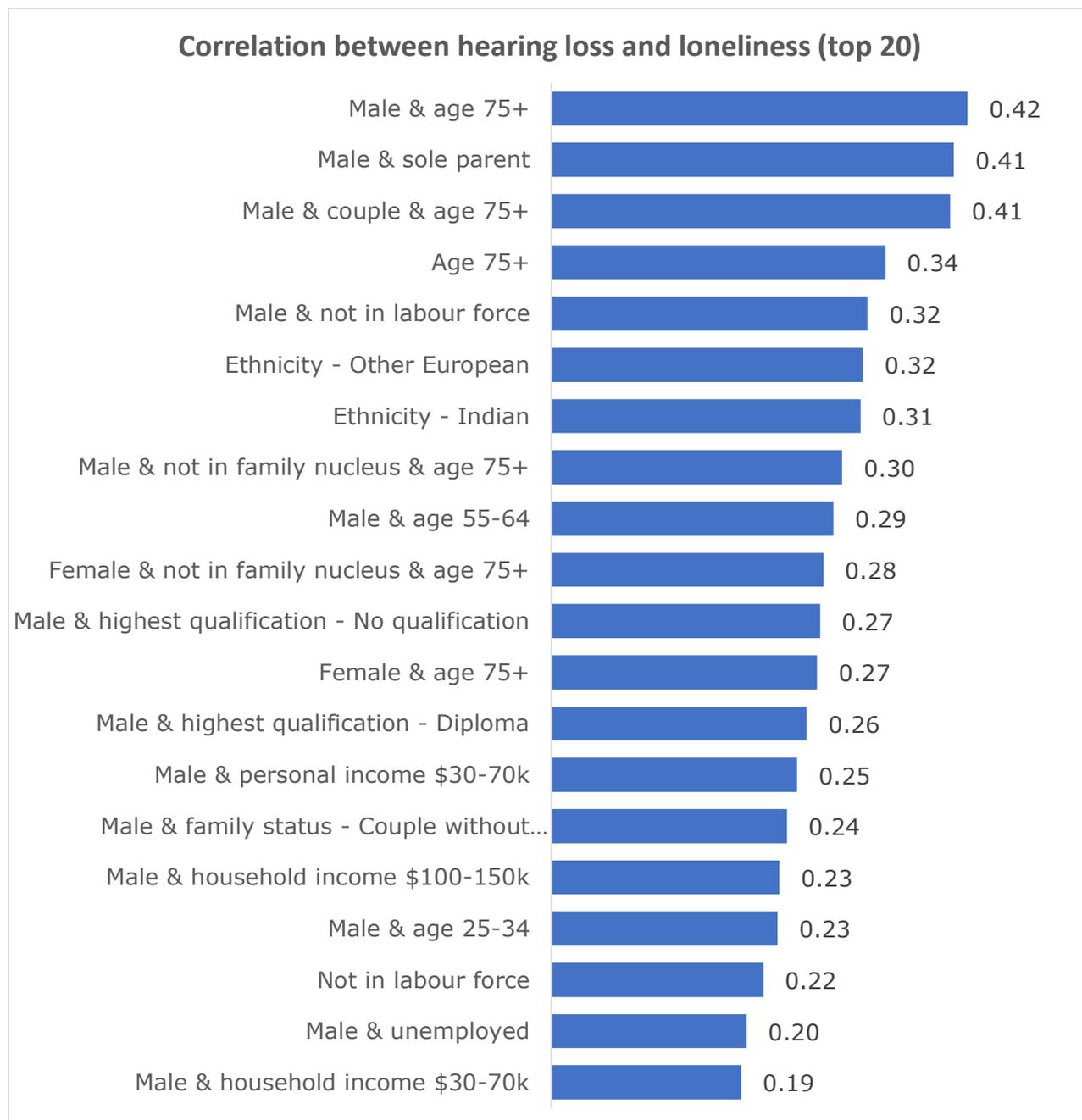
In the New Zealand context, the gender difference in correlation coefficients can be partly explained by the gender prevalence of hearing loss: about 473,000 males in New Zealand have hearing loss whereas about 407,000 females have hearing loss (2). Our survey was consistent with this fact, with a higher proportion of males (28%) than females (23%) having some form of self-reported hearing loss. For the age group 75+, which has a strong association between hearing loss and loneliness, our survey showed 51% of males aged 75+ had some form of self-reported hearing loss versus 41% of females aged 75+.

New Zealand's higher prevalence of hearing loss in males vs. females was greater than globally, where 217 million males (5.6%) and 211 million females (5.5%) have moderate or high levels of hearing loss (4).

### 3. Demographic groups more at risk of loneliness caused by hearing loss

#### 3.1 Top associations between hearing loss and loneliness

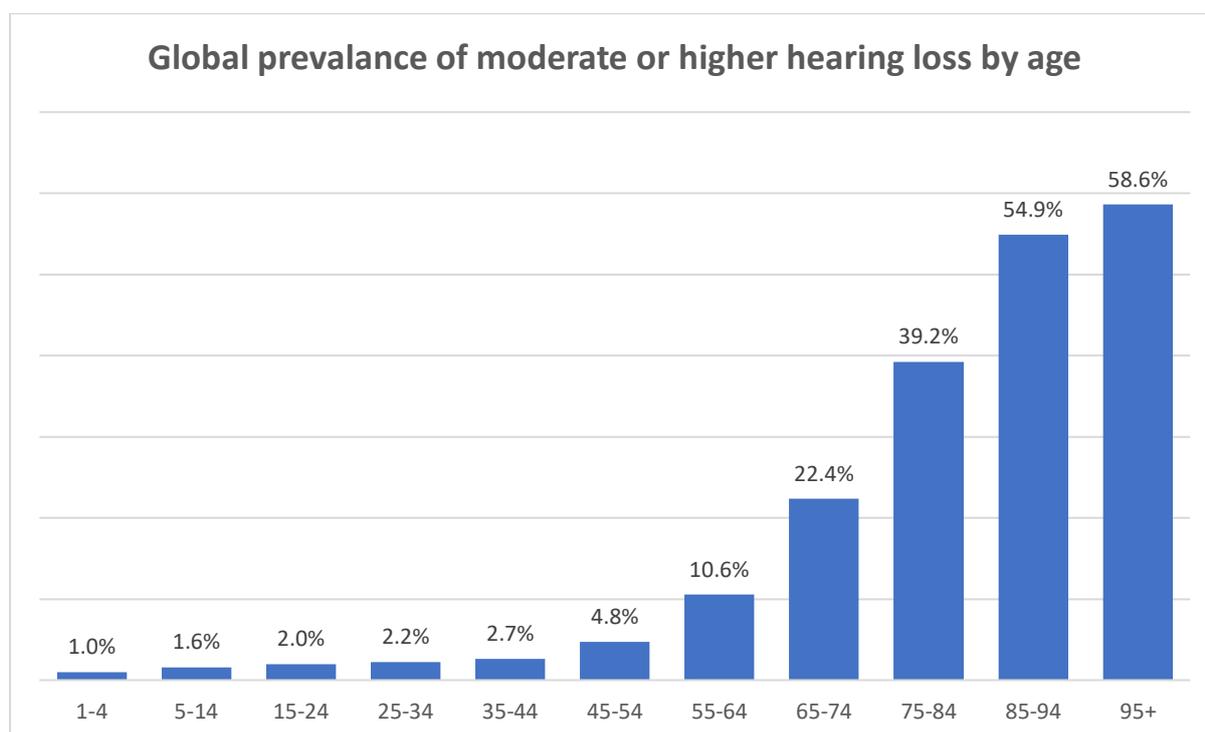
Overall, the twenty demographic groups that we examined with the highest correlation between hearing loss and loneliness are:



These correlation coefficients are particularly high for such a complex phenomenon like loneliness. The general theme that comes through in the top ten of these demographics is that the strongest association between hearing loss and loneliness is for adults aged

75+ (especially men), male sole parents, male adults not in the labour force, and specific ethnicities.

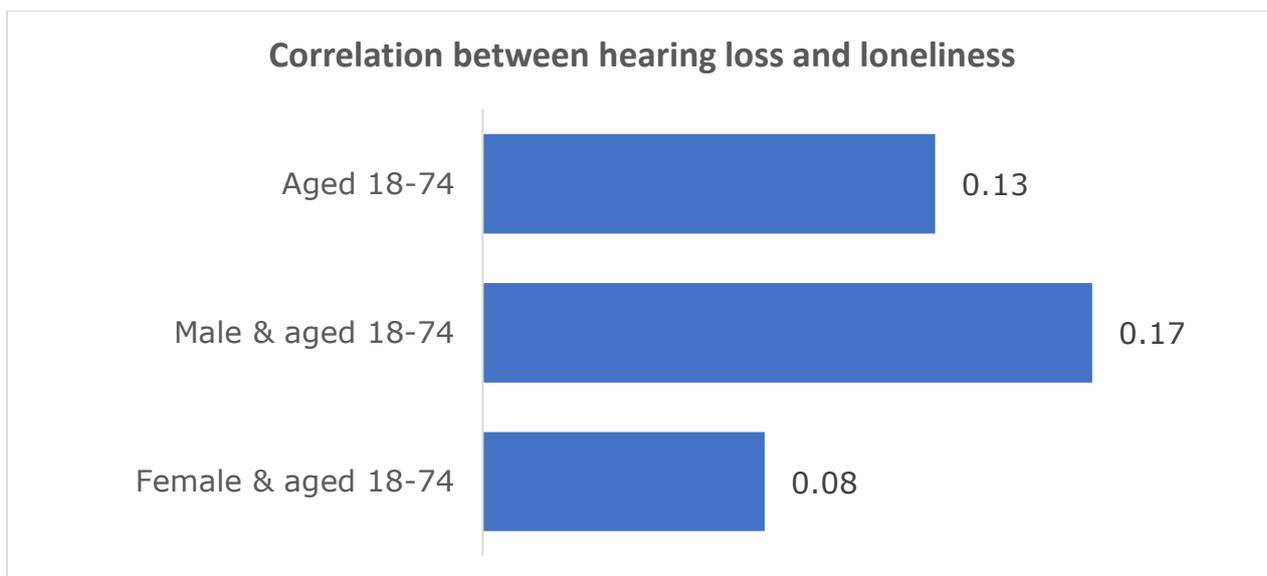
The global evidence shows that the prevalence of hearing loss increases with age (4).



In examining the correlations between hearing loss and loneliness across age groups, we found that the New Zealand data for adults aged 18+ could be divided into two distinct age groups: adults aged 18-74 and adults aged 75+. By way of comparison, if the prevalence of global hearing loss had to be divided into two distinct age groups, the above chart suggests they would be adults aged 18-64 and adults aged 65+. The difference between these two divides suggests that there may be a delay between the onset of hearing loss and the onset of loneliness. Further research is required on any temporal relationship.

### **3.2 Association between hearing loss and loneliness for adults aged 18-74**

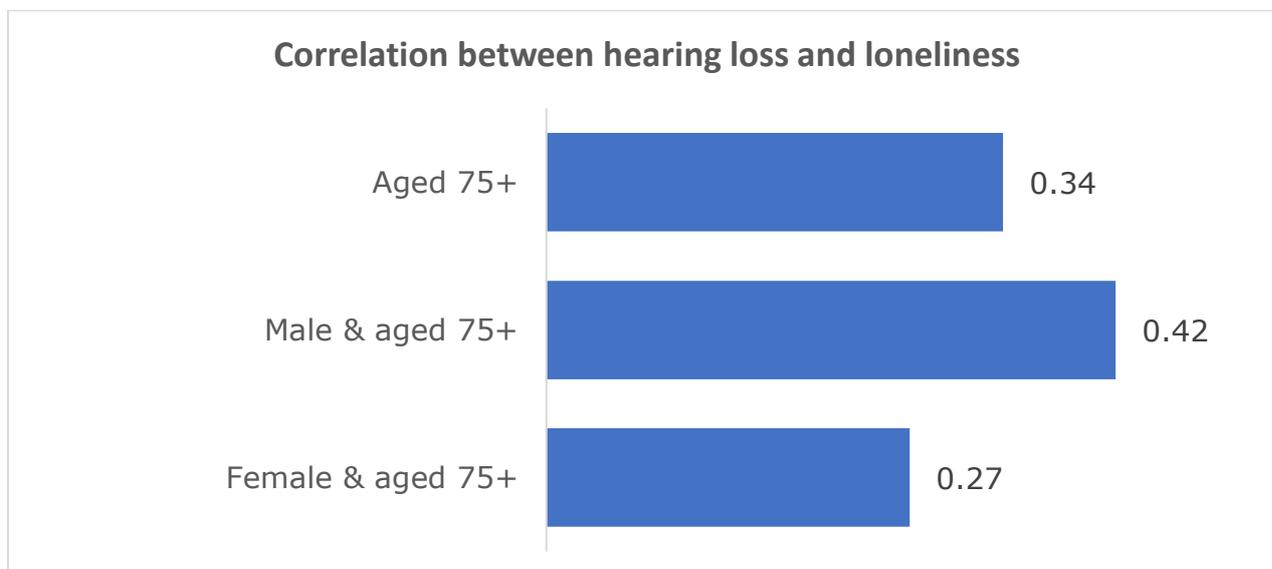
The association between hearing loss and loneliness for adults aged 18-74 provides a baseline for the much stronger association for adults aged 75+. Like for the total population, the association is stronger for males than females.



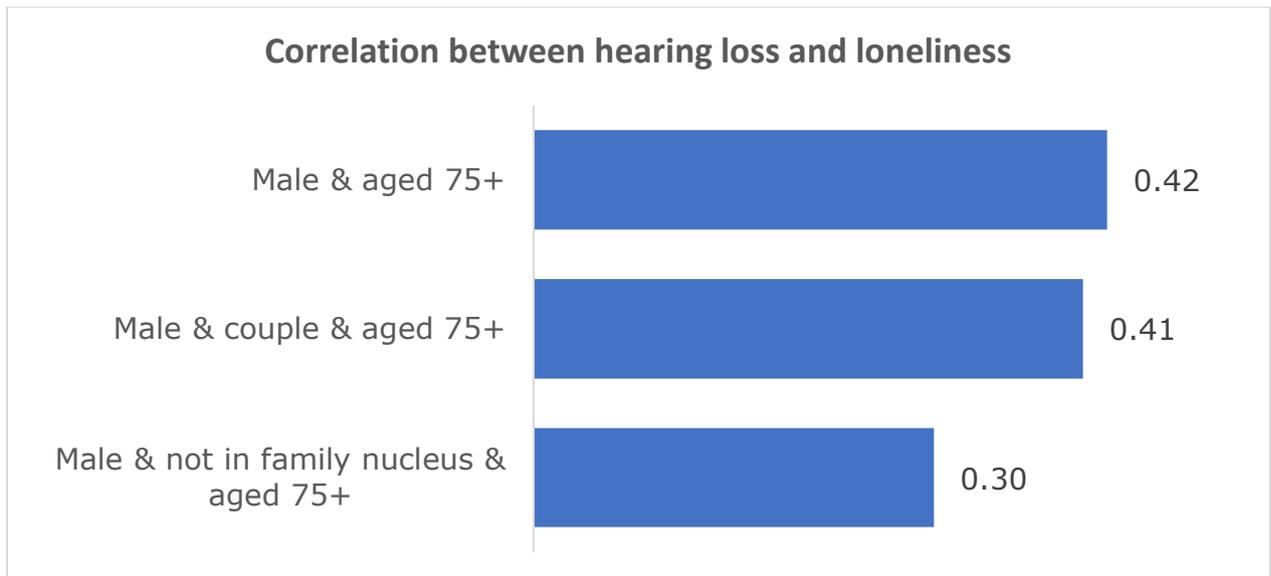
Given most adults aged 18-74 do not suffer from hearing loss, the above graph shows a significant correlation for adults aged 18-74. Given the breadth of age range, further research is required to determine that there are not other confounding factors that are leading to these correlations.

### 3.3 Association between hearing loss and loneliness for adults aged 75+

In New Zealand, for any lonely adult aged 75+, the below correlations show there is a reasonable possibility that their loneliness is associated with hearing loss. This is particularly the case for male adults aged 75+.

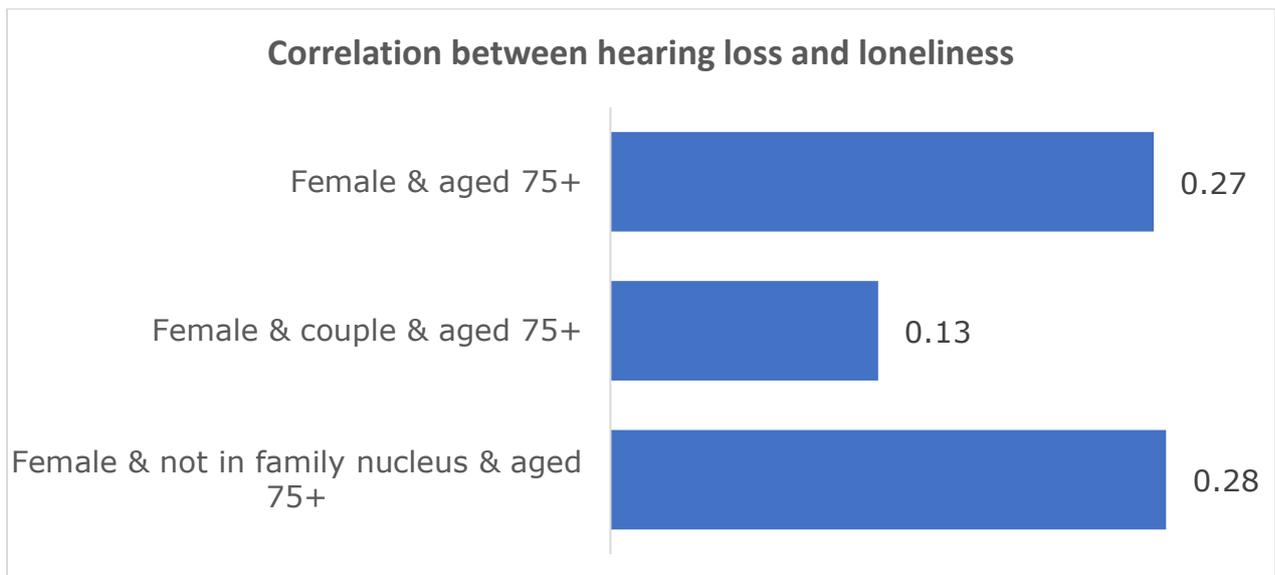


When we dive deeper into the family status of male adults aged 75+, we find that the association between hearing loss and loneliness for those who are partnered (0.41) is greater than for those who are single (0.30).



The stronger association for partnered (vs. single) males aged 75+ may be due to partnered men with hearing loss having greater unmet expectations with their meaningful connections than single men with hearing loss – leading to a greater prevalence of loneliness. Further research may clarify this relationship.

On the other hand, for female adults aged 75+, we find that the association between hearing loss and loneliness for those that are partnered (0.13) is less than for those who are single (0.28).



The stronger association for single (vs. partnered) females aged 75+ may be due to widowhood which can, in particular, contribute to loneliness of females aged 75+. Further research may clarify this relationship.

### **3.4 Comparison to international research**

International research has focused on the association between hearing loss and loneliness for the older adult demographic group. In March last year the first systematic review of the international academic research found that there is an association between hearing loss and loneliness in older adults (11). This is consistent with our findings that for adults aged 75+ there is a strong association between hearing loss and loneliness, especially for males.

The WHO "World report on hearing" (4) shows that communication partners of those with hearing loss experience frustration and anger, and that relationships with both children and adults can be damaged as a result of hearing loss. The appendix provides extracts from the WHO report on the link between hearing loss and social isolation, loneliness, mental health, and relationships.

## 4. Reducing loneliness by preventing and treating hearing loss

Statistical analysis of our Post Lockdown Survey 2020 shows a strong association in New Zealand between hearing loss and loneliness for those adults aged 75+ (especially men), male sole parents, males adults not in the labour force, and specific ethnicities. Given the strong associations in New Zealand for specific demographic groups, the next question is whether prevention and treatment of hearing loss (especially for these demographic groups) provides an important prevention and intervention for loneliness in New Zealand. In this regard, we turn to international research which has considered whether loneliness is reduced (in older adults) by treating hearing loss:

- A study in 2011 found for older adults that there was a significant risk of loneliness for two sub-groups: men and non-hearing-aid-users (12).
- A 2016 study found significant decline in perceptions of loneliness following 4 to 6 weeks of hearing aid use (13). A dose effect emerged with persons with moderate-to-severe hearing loss experiencing the greatest reduction in perceived loneliness with hearing aid use. The study concluded that hearing aid use appears to be a buffer against loneliness.
- In 2017, a study found that treatment of hearing loss with Cochlear implants resulted in a significant reduction in loneliness symptoms, with the greatest improvements observed in individuals with the most loneliness symptoms at baseline (14). The same effect, however, was not observed for those treated with hearing aids.
- A 2019 study demonstrated a significant reduction in loneliness in Cochlear implant users 6 months and 1 year after treatment (15). However, after 5 years, there was no observed reduction in loneliness for either Cochlear implants or hearing aids. The study recommended future randomized trials to definitively assess the impact of treated versus untreated hearing loss on loneliness.

While the international research does not definitively show that treatment of hearing loss reduces loneliness (over the long-term), based on what we know, we can conclude for now that prevention and treatment of hearing loss appears to provide an important prevention and intervention for loneliness.

This conclusion is supported by anecdotal evidence. We heard a strong link being made by the hearing loss community at the Auckland 'meet the panel' discussion held by the Mental Health and Addiction Inquiry in 2018. Additionally, one of our Loneliness NZ Advisers commented on an earlier draft of this report:

"The report clearly shows what we witness and experience on daily basis in retirement villages and care homes (which is my area of expertise). Those with hearing loss are always withdrawing from socialising to avoid feelings of embarrassment or in their words 'becoming a burden for others'. Hearing loss makes it more challenging to be social."

We expect further research will support our conclusion and this anecdotal evidence.

## Appendix. Extracts from WHO “World report on hearing”

On 3 March 2021, the World Health Organisation (WHO) published its first-ever “World report on hearing” (4). In this appendix we briefly summarise or quote extracts relevant to this report.

### **The challenge**

Globally, the WHO region with the highest prevalence of moderate or higher hearing loss is the Western Pacific (7.1%), which includes New Zealand. High-income countries have a higher prevalence of moderate or higher hearing loss (7.5%) than low-income countries (3.3%). In the WHO Western Pacific region, 81% of people in need of a hearing aid are not using one. Furthermore, the prevalence of people in need of a hearing aid and not using one in high-income countries is 74.5%, and in low-income countries is 91.0%.

### **Call to action**

“The report calls upon Member States to initiate affirmative action that both includes, and addresses, the needs of those living with ear diseases and hearing loss, as well as the populations at risk of these conditions.”

### **Social isolation and loneliness**

“Hearing loss contributes to both social isolation and loneliness at all ages, more specifically in women and older adults (11,16), possibly because of decreased participation in activities, or by having a smaller social network. This is observed especially in places where access to ear and hearing care is limited (17). The impaired ability to comprehend auditory information and maintain conversations (18) may lead to avoidance of potentially embarrassing social situations by the affected persons (19). Hence, people with hearing loss, particularly those who do not use hearing aids, show elevated levels of loneliness (12, 16, 20).”

“Social isolation and loneliness due to hearing loss can have important implications for the psychosocial and cognitive health of older adults. Lack of engagement and feeling lonely may mediate the pathway linking hearing loss and cognitive decline (21, 22). Furthermore, both can contribute to worsened mental health, leading to experience of depression and distress (10, 23, 24).”

### **Mental health**

“Across the life course, people with hearing loss commonly have higher rates of depression and report lower quality of life compared with their hearing peers (25–27). Social withdrawal and altered social interactions are frequently observed in persons with hearing loss, as well as feelings of embarrassment, rejection and anxiety (28). Often, during conversation, their communication partners experience frustration and anger (28).”

## Relationships

“Over 90% of deaf children are born to hearing parents who most often have no fully effective means to communicate with their child (29, 30). A number of studies report that parents have difficulties developing meaningful communication with their child with hearing loss, and in managing the child’s behaviour, especially if they have other conditions such as autism spectrum disorders (31). In adults, hearing loss can have a negative impact on personal relationships resulting in communication difficulties, misunderstandings and conflict (28). The effect is evident both for the person with hearing loss as well as their communication partners.”

## Designing a path forward: A public health framework for ear and hearing care

“Ear and hearing care is an integral component of universal health coverage. Goal 3 of the Sustainable Development Goals for 2030 requires that all people, including those with hearing loss and ear diseases, have access to high quality services without experiencing financial hardship. This can be achieved through an integrated, people centred ear and hearing care (IPC-EHC) approach, with ear and hearing care services included in national health plans and delivered through a strong health system to ensure that those affected have equitable access to a continuum of care across the life course.

Essential public health interventions for the provision of ear and hearing care services across the life course are summarized in the acronym “H.E.A.R.I.N.G.”:

- **H**earing screening and intervention;
- **E**ar disease prevention and management;
- **A**ccess to technologies;
- **R**ehabilitation services;
- **I**mproved communication;
- **N**oise reduction; and
- **G**reater community engagement.

The first four (H.E.A.R.) can be integrated and delivered through strengthened health systems.”

“Countries should determine which interventions best suit their needs by conducting an evidence-based consultative prioritization exercise. Implementation using the IPC-EHC approach requires actions at all levels of the health system through:

- policy guidance and planning with a collaborative approach, including the setting of realistic and time-bound targets;
- sustainable financing and health protection to ensure that people access high quality ear and hearing care services without impoverishment;
- workforce capacity development, achieved by expanding education programmes for the relevant ear and hearing care workforce; task-sharing with, and training of, non-ear and hearing care cadres;
- health information and data that help determine population needs and priorities, identify gaps, and track progress towards the targets set;
- equitable access to high-quality hearing technologies, which could be furthered

- by their inclusion in governments' lists of essential devices;
- access to safe and high-quality diagnostic and surgical equipment, as well as the medicines required for ear and hearing care; and
- relevant and impact-oriented research that supports implementation of IPC-EHC across the life course.

Implementation of these public health interventions through the health system will benefit not only the lives of those affected and their families but also yield significant economic benefits and productivity gains. It is estimated that scaling up ear and hearing care during the next 10 years, through integrating the H.E.A.R interventions into health systems, will require only an additional annual per capita investment of US\$ 1.33. The resulting health gain over 10 years will avert nearly 130 million DALYs (disability adjusted life years) and yield a return of nearly US\$ 16 for each 1 dollar invested in ear and hearing care."

In the WHO Western Pacific region, which includes New Zealand, the return is over US\$ 17 for each 1 dollar invested in ear and hearing care.

### **Recommendation: make ear and hearing care accessible to all**

"Integrated people-centred ear and hearing care must be available and accessible to all, where and when needed, without causing financial hardships."

"Ear and hearing care interventions should be systematically integrated into national health care plans, taking into consideration the needs and priorities of each country. All stakeholders in the field of public health should take the following actions:

#### *Ministries of Health*

1. Include people-centred ear and hearing care in universal health coverage.
2. Strengthen health systems to deliver IPC-EHC at all levels of care.
3. Undertake awareness campaigns that address attitudes towards, and stigma, related to ear diseases and hearing loss.
4. Determine targets, monitor national trends and evaluate progress.
5. Promote high-quality public health research on ear and hearing care.

#### *International and nongovernmental organizations*

1. Align with WHO's global targets for ear and hearing care and support their monitoring.
2. Take steps to improve knowledge, attitude and practices with respect to ear and hearing care.
3. Stimulate generation and dissemination of knowledge on ear and hearing care.
4. Participate actively in global action for ear and hearing care.

*Stakeholders in ear and hearing care, including professional groups, civil society and private sector entities*

1. Support national governments and WHO in the provision and monitoring of ear and hearing care.
2. Contribute to the generation of knowledge regarding the public health aspects of ear diseases and hearing loss.
3. Collaborate to ensure that all stakeholders can contribute to, and have a common vision of, ear and hearing care.
4. Highlight the importance, need, and means for ear and hearing care and advocate for its prioritization.”

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