


# Ear and hearing health in Niue: a qualitative study on the worldviews, knowledge, beliefs and use of health care

Elizabeth A-L Holt<sup>A,B,\*</sup>  BHSc, MPH (Hons), PhD, NZRP, Vili Nosa<sup>C</sup> BA, MA (Hons), PhD, Judith McCool<sup>D</sup> BA, MPH, PhD and Peter R. Thorne<sup>A,B</sup> BSc, DipSci, PhD

For full list of author affiliations and declarations see end of paper

## \*Correspondence to:

Elizabeth A-L Holt  
Section of Audiology, School of Population Health, Faculty of Medical and Health Sciences, University of Auckland, Private Bag 92019, Auckland 1142, New Zealand  
Email: [e.holt@auckland.ac.nz](mailto:e.holt@auckland.ac.nz)

## Handling Editor:

Tim Stokes

Received: 12 October 2021

Accepted: 6 April 2022

Published: 14 June 2022

## Cite this:

Holt EA et al.  
*Journal of Primary Health Care* 2022  
doi:[10.1071/HC21137](https://doi.org/10.1071/HC21137)

© 2022 The Author(s) (or their employer(s)). Published by CSIRO Publishing on behalf of The Royal New Zealand College of General Practitioners.

This is an open access article distributed under the Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License ([CC BY-NC-ND](https://creativecommons.org/licenses/by-nc-nd/4.0/))

OPEN ACCESS

## ABSTRACT

**Introduction.** Hearing is a primary sense that facilitates the development of spoken language, social connection and an appreciation of sounds within the natural world. Hearing loss has multiple adverse effects across the life course. Understanding the worldviews of ear and hearing health in Pacific peoples is crucial to inform responsive and appropriate hearing health and primary healthcare services. **Aim.** To understand the worldviews, knowledge and beliefs held by the Niuean community in Niue towards ear and hearing health, and the use of healthcare methods to contribute to service development. **Methods.** Twenty semi-structured interviews were conducted with Niuean community members. Interviews were audio-recorded, transcribed verbatim, and analysed using thematic analysis methods. **Results.** Niuean people value hearing health as an important way to communicate and connect with each other. They are proactive health seekers, have good knowledge about ear disease and hearing health and use mainstream medicines alongside spiritual practices and traditional remedies to maintain good ear and hearing health. The hospital system is responsive and accessible to the community's needs, contrasting with Pacific people's access to hearing health services in New Zealand. **Discussion.** There is a high level of awareness of the importance of hearing health amongst the Niuean community and good accessibility and utilisation of healthcare services. There is potential to implement locally focused ear and hearing health strategies in Niue and conduct hearing health research among the New Zealand-based Niuean community to improve primary healthcare services delivery.

**Keywords:** beliefs, ear and hearing health, healthcare, interviews, knowledge, Niue, Pacific, qualitative, talanoa, worldviews.

## Introduction

Hearing loss and ear disease are significant global health issues. Globally, hearing loss is the third most common chronic disease by years lived with a disability.<sup>1</sup> Hearing loss and ear disease in childhood can adversely affect language, cognitive, emotional, and academic development.<sup>2–4</sup> In Pacific Island countries, epidemiological data and prevalence estimates suggest a high hearing loss and middle ear disease burden,<sup>5–7</sup> whereas in New Zealand, middle ear disease, acquired hearing loss, and auditory processing disorders are highly prevalent among Pacific children.<sup>8–10</sup> Although services for prevention, detection, treatment, and rehabilitation are traditionally limited in Pacific Island countries, recent years have seen a significant movement in the region to improve the delivery of ear and hearing care services to their communities.<sup>11</sup>

Understanding Pacific peoples' knowledge and beliefs is an essential component in developing appropriate healthcare programmes.<sup>12</sup> Individuals and groups can have vastly different notions of health and disease, influencing the expectations and experiences within the healthcare setting.<sup>13</sup> A limited body of recent international research examines parental and physician perceptions, knowledge, programme acceptability, and beliefs of ear disease and hearing loss,<sup>14–19</sup> including one in the Pacific region.<sup>20</sup> Attitudes towards hearing loss and ear and hearing care programmes can determine

## WHAT GAP THIS FILLS

**What is already known:** Limited international research has examined ear disease and hearing health knowledge and beliefs to inform service development.

**What this study adds:** Very little is known about the worldviews of ear disease and hearing health of Pacific peoples. This study is the first qualitative investigation using a Pacific methodological approach to examine Pacific peoples' ear and hearing health worldviews, including knowledge, beliefs, and healthcare service utilisation in a Pacific Island country.

the acceptance of screening and rehabilitation services, testing, surgery, and levels of parental support.<sup>20,21</sup> No identified studies have examined Pacific peoples' broader worldviews regarding ear and hearing health. For Pacific peoples, one's worldview is the 'embodiment of our sense of self in the world' (p. 14).<sup>22</sup> Understanding the worldviews of Pacific peoples can strengthen the inclusiveness and responsiveness of the health system and contribute to improved health outcomes.<sup>12</sup>

One of the world's largest raised coral islands, Niue, is in the South Pacific Ocean with an approximate land area of 259 km<sup>2</sup> and an exclusive economic zone of 450 000 km<sup>2</sup>. Niue's closest neighbouring islands are Tonga, Samoa and the Cook Islands, and New Zealand is located 2400 km southwest. The population of Niue is 1784; Niueans are the fourth most populous Pacific ethnicity in New Zealand at 30 867.<sup>23</sup> Located close to the capital Alofi, Niue Fofu Hospital is the only primary and secondary healthcare provider for all health services and public health programmes.<sup>24</sup> A New Zealand realm country since 1974, all Niuean peoples are New Zealand citizens with full and cost-free healthcare access to all local and New Zealand healthcare services. Patients requiring specialist tertiary care can be transferred to New Zealand due to an agreement between the Niuean Government and the New Zealand Counties Manukau District Health Board.

This study aimed to understand Niuean peoples' ear and hearing health worldviews, including knowledge and beliefs, and to explore the patterns of Niuean people's access to and use of primary and traditional health care to inform service development.

## Methods

Pacific research methodologies provided the foundation for the research approach. Pacific values and belief systems – such as service, cultural engagement, reciprocity, and community orientation – strengthen the validity and relevance of the findings to Pacific communities. The Pacific concept of *Talanoa*, an oratory tradition recognised in many Pacific

Island countries,<sup>25</sup> guided the interviews. *Talanoa* is commonly used within academic research as both a method and methodology to enable connected, respectful, open conversation, and allow the interaction to achieve particular research goals.<sup>26</sup> Conducting interviews based on *Talanoa* with community members permitted an insight into the worldviews of Niuean peoples regarding ear and hearing health, as the basis of *Talanoa* is good interpersonal relationships, rapport between participant and the Pacific researcher, and a mutual understanding and respect of shared cultural values. Although there is emerging evidence into the use of *Tutala*, a Niuean-specific approach to talk and converse,<sup>27</sup> *Talanoa* was used for this study because it was considered the most appropriate methodology for this research. The key areas explored were: knowledge and beliefs systems; attitudes towards ear and hearing health; understanding health-seeking behaviours; and the sharing of needs to improve the healthcare service in Niue.

## Ethical approval

Ethical approval was granted by The University of Auckland Human Ethics Committee (reference 017535), the Niue Health Department and Niue Education Department. The relationship between the principal researcher/s and the Niuean community was facilitated more than 2 years before data collection to ensure relevance and appropriateness of the research approach. This qualitative study formed part of a larger study on child ear and hearing health in Niue.

## Participants

Purposive sampling<sup>28</sup> and snowball sampling methods<sup>29</sup> were used to recruit participants. Recruitment was through the Niue public health department and poster advertisements placed in Niue Fofu Hospital and the local schools. Participants needed to be aged > 18 years and consent to the study procedures for inclusion in the study.

## Interviews and analysis

Due to the study's exploratory nature, the questions were open-ended and structured around the study aims and purposely kept open to allow a flexible interviewing style. For example, the opening question was 'What does hearing mean to you?'. Interviews were audio-recorded, transcribed verbatim, and cross-checked by participants if requested. In qualitative research, the sample size is considered adequate when little or no new information emerges from interviews or questionnaires and will reach a 'data sufficiency' level.<sup>30</sup> Therefore, between 18 and 20 interviews were considered an appropriate number of interviews for this study. Data were collected and analysed by EH using inductive thematic analysis methods, as described by Braun and Clarke,<sup>31</sup> to identify key themes. The qualitative data software package,

NVivo (QSR International), assisted with the coding and analysis of the interview data.

Codes were systematically generated across the entire dataset, with 30 codes generated during the initial coding phase. First, initial candidate themes were established from these initial codes, purposively kept broad. Next, four initial candidate themes were mapped out, and all the relevant codes were collated according to each theme. Finally, themes were checked against the entire dataset to ensure accuracy, then re-worked and revised.

## Results

Twenty face-to-face interviews were conducted by EH with community members and included 10 healthcare workers, eight teachers, and two general community members. Sixteen participants were female and four were male. Data collection was between September 2017 and November 2017. Three main themes and their associated sub-themes were developed.

### Theme One: hearing is an important sense that must be protected

#### Hearing is connection

Participants acknowledged that hearing was a vital sense that allows sound to be received and interpreted. Participants described hearing as giving 'good balance', communication, aid in wellbeing, and engagement with the natural world. Participants expressed that good hearing is vital during childhood to receive and process information and interact with family and community members.

Healthy hearing is being able to hear what others are trying to communicate with you. Dialogue. Being able to hear properly and to interact with other people. (Teacher 5)

#### Hearing loss has major personal and societal impacts

Participants recognised that hearing loss could have significant personal, behavioural, and societal impacts, such as feelings of stigma, shame, frustration, anger, and resentment. In addition, having an untreated hearing loss can have significant adverse effects on education, peer relationships, and the ability to gain future employment. As one participant explained:

His behaviour was so aggressive. Hit a lot of children...he told us that his hearing was making him like that. (Teacher 15)

Participants described that hearing loss and ear disease could result from a range of physical illnesses such as bacterial infections, poor hygiene, and swimming in dirty water.

### Hearing loss can be prevented despite its many causes

Most participants recognised the importance of protecting one's hearing. Strategies include community education of healthy ear care practices, stopping children from putting foreign objects into their ears, using ear protection devices in loud environments, and education in how to equalise ears when swimming or diving.

Several participants described the special connection between eyes and ears and the importance of hearing and vision to child development. In addition, participants discussed the relationship between eyes and ears as critical sensory organs, whereas others talked about the vital role that eyes and ears play during conversation and culture. As one participant expressed:

In the Niuean context, [ears are] part of the features, the eyes and the mouth, I think because of the listening factor and the passing down of the word, genealogy, oral culture. (Healthcare worker 6)

### Theme Two: Niuean people use a combination of health practices to maintain their ear and hearing health

#### Health system, traditional medicine and spiritual practices are used in conjunction with each other

Most participants discussed how Niuean people combine health and wellbeing practices to maintain their hearing health. Some participants expressed that Niuean peoples are characteristically proactive and use a combination of traditional, spiritual (such as prayer and religious practices), and mainstream remedies to heal ear conditions. As one participant expressed:

For my household, my family, we do a lot of praying, but we also seek medical help, and we can't do one without the other. Like, you can't just go to the doctor, and that's it, you can't just do the prayer, and that's it. One has to support the other. (Teacher 12)

Although many participants believed in the efficacy of both mainstream and traditional remedies, some participants also expressed that some Niueans favoured mainstream or hospital medicines over traditional remedies, indicating a strong belief in the efficacy of hospital medicines. People might turn to traditional remedies if mainstream medicines have not effectively treated their ear condition or preferred to use a remedy that they consider to be more natural and unprocessed, such as warmed coconut oil.

They do have their faith, but priority they will come to the hospital and get the antibiotics, and they will pray for the person for the process to work. But not to rely solely on faith to heal the ears. (Healthcare worker 8)

### **There is generally good access to health services**

Although participants acknowledged few transportation and economic barriers to accessing healthcare services, some potential issues were identified. These included a lack of health literacy, fear of healthcare workers, ineffective treatments, and perceived confidentiality issues are potential health service access barriers.

### **Develop health promotion messages and expand services in-country**

Participants provided ways to improve ear and hearing health services in Niue, such as culturally specific hearing health promotion initiatives, developing education messages to build hearing health knowledge among the population, and to take services out of the hospital and into the community, churches, villages and schools. One participant expressed ways in which to develop community-based programmes in ear and hearing health:

Always involving family and community. Ensure you're speaking the same language, not too technical. And talk to them in Niuean if they can't speak English, even if you have to write it down. (Healthcare worker 6)

Building the local ear and hearing health workforce was necessary, such as providing training for medical staff, providing regular ear checks and hearing screening for the community, and investing in specialised staff in ear and hearing health.

## **Theme Three: holistic belief system**

### **Health is a holistic entity**

Members of the Niuean community possess holistic worldviews, which blend traditional, spiritual, religious, and mainstream scientific influences on health behaviours and health beliefs. Community members use prayer in conjunction with other healing methods such as traditional and mainstream medicine.

you can't just rely on the spiritual and not physical at the same time, they work together. You ask for help, and at the same time, you look for help yourself...The help that you ask from up there is to give you confidence that your child is going to get better. And with the help from whoever it is, local medicine or local doctors. (Teacher 17)

Some participants expressed that the older Niuean generation may hold more superstitious beliefs than the younger generation. However, superstitious beliefs overall are becoming more and more uncommon.

### **Relationships are fundamental to the Niuean way of life**

The interviews emphasised the communal, interconnected nature of life on the island. Participants expressed

that the strong relationships between family groups, teachers, schools, the hospital, community, and churches are fundamental to Niuean culture and management of children with hearing losses.

...Because if a child has a hearing or eye problem, just to let us know so we can find ways to help them and not just keep it silent. Open communication between health, parents and the school. (Teacher 17)

## **Discussion**

The findings show that for Niuean people, hearing allows connection and communication, and is a vital sense that connects them to their surroundings. Like many other Pacific societies, the Niuean community functions primarily through folklore; education, cultural expression, and knowledge transmission are passed down through the generations through oral means.<sup>32</sup> This study shows verbal communication and oral expression, as facilitated through the sense of hearing, provide an essential part of the Niuean culture. Niuean peoples value the sense of hearing as it enables connection with other members of their family and the wider community.

The main themes generated from the interviews indicated an excellent general understanding of ear disease, signs and symptoms, and causes of ear infections and hearing loss within the Niuean community. The only other published study on the ear and hearing health beliefs within a Pacific Island country, based in the Solomon Islands, revealed that participants understood hearing loss, particularly middle ear disease, noise exposure, and family history.<sup>20</sup> Fathers and mothers both were concerned and aware of the implications of childhood hearing loss and appreciated the importance of the development of hearing services. Although the Solomon Islands study found that over half (56%) of parents believed that a hearing loss could be due to a curse,<sup>20</sup> these attitudes contrast with the current study, with very few participants feeling that hearing loss is due to a curse. Previous research in Pacific communities shows that certain members, particularly the older generation, may still believe that disability, such as a hearing disability, is a form of religious or cultural punishment.<sup>33</sup> This attitude is less common in younger generations or New Zealand-born Pacific peoples.

The participants expressed that Niueans used various practices to maintain their physical, spiritual, and mental health, including ear and hearing health. Niueans have strong faith in mainstream medicine, whereas traditional remedies and spiritual practices are commonplace to heal the ears, body, and spirit. Mainstream medicine use in Niue contrasts with other Pacific Island communities with a strong preference for traditional remedies and healing



methods.<sup>34</sup> In New Zealand, traditional remedies and healers may be preferred over mainstream medicines.<sup>35</sup> The current study has revealed that although hospital medicines are the primary option, Niuean people used mainstream medicines, traditional practices, and spiritual practices in conjunction, depending on the needs and preferences of the patient.

The interviews illustrate that the Niue health system offers good access to primary healthcare services. Most Niue residents can access transport to and from the hospital and receive appropriate, timely, and affordable treatment. Communication between healthcare workers, educational workers, and the Niuean population facilitates access to healthcare services. Good access to health services in Niue contrasts greatly with New Zealand, exposing significant barriers Pacific peoples face in accessing healthcare services.<sup>12,36–38</sup>

Although access is generally good, acknowledging the availability of New Zealand-based services for Niuean citizens, participants expressed ways to improve primary ear and hearing health services on the island. Developing health promotion messages, public education and awareness of ear and hearing health, and building the local workforce capacity such as clinical hearing health education for staff are strategies to improve ear and hearing services delivery. A public health approach to the prevention of ear disease and hearing loss is recommended by the World Health Organization, which estimates that 60 per cent of childhood hearing losses are potentially preventable.<sup>39</sup> A public health approach is the most cost-effective strategy to prevent hearing loss and includes health promotion, disease prevention, and reliable data collection.<sup>40</sup> Although implementing ear and hearing health policies, such as hearing screening and ear protection, and monitoring stakeholder action is also essential in any hearing health programme,<sup>41</sup> an ear and hearing health strategy developed in Pacific Island nations must be sensitive to challenges to the local context, such as the limited technical, financial, and human resources.<sup>42,43</sup>

The interviews demonstrated that participants' philosophical health and wellbeing worldviews are holistic, confirming previous research findings. Niueans believe the human dimensions of a person's *mou*i (life), such as the physical body, emotions, spirit, and mind, are interconnected and interdependent. Individuals are inextricably connected to their families and wider communities, and good relationships form the basis of a peaceful life.<sup>44</sup> This holistic view of health is also evident at the policy levels across various Pacific nations. It underpins important high-level policies, such as the Healthy Island Yanuca Declaration,<sup>45</sup> a visionary health promotion and health protection initiative. Ear and hearing health programmes must be holistic to address Pacific people's audiological, medical and educational needs.<sup>46,47</sup>

## Strengths and limitations

The study is embedded in Pacific methodologies, providing the basis for study development, implementation, analysis, and dissemination. The close collaboration and co-design of the study with the community also strengthen the study's relevance to the Niuean peoples. This interview study is one branch of a larger study, including a hearing screening study and a questionnaire study. The broader work supports the greater vision of workers in this speciality, working towards improved health services and public health programmes to reduce the prevalence of preventable hearing loss for Pacific Island peoples in the Pacific Region. The key relationships that have been built throughout the research strengthen the outcomes of the study findings.

Although the lead researcher, EH, is of Pacific (Tongan) descent, she is not Niuean. Outsider and cultural perspectives may influence the type or depth of information provided during the interviews. Cultural identities and worldviews vary both locally and regionally;<sup>48</sup> therefore the findings from this study may differ in other Pacific Island nations and Niuean peoples in New Zealand. Eighty percent of the sample were workers in health or education. Including a range of community participants outside of health and education may have provided alternative perspectives to the data.

## Implications of the study

This study highlights the importance of understanding the worldviews of ear disease and hearing health among community members to inform the appropriate development of primary ear and hearing healthcare services.

The study has the potential to be conducted with Pacific peoples across other Pacific Island countries and with members of the Pacific community, including the Niuean population in New Zealand, to ensure contextual relevance.

## References

- 1 Global Burden of Disease Study 2013 Collaborators. Global, regional, and national incidence, prevalence, and years lived with disability for 301 acute and chronic diseases and injuries in 188 countries, 1990–2013: a systematic analysis for the Global Burden of Disease Study 2013. *Lancet* 2015; 386(9995): 743–800. doi:[10.1016/S0140-6736\(15\)60692-4](https://doi.org/10.1016/S0140-6736(15)60692-4)
- 2 Williams CJ, Jacobs A. The impact of otitis media on cognitive and educational outcomes. *Med J Aust* 2009; 191(S9): S69–S72. doi:[10.5694/j.1326-5377.2009.tb02931.x](https://doi.org/10.5694/j.1326-5377.2009.tb02931.x)
- 3 Moore DR, Zobay O, Ferguson MA. Minimal and mild hearing loss in children: association with auditory perception, cognition, and communication problems. *Ear Hear* 2020; 41: 720–732. doi:[10.1097/AUD.0000000000000802](https://doi.org/10.1097/AUD.0000000000000802)
- 4 Aarhus L, Tambs K, Kvestad E, et al. Childhood Otitis Media: a cohort study with 30-year follow-up of hearing (The HUNT Study). *Ear Hear* 2015; 36(3): 302–308. doi:[10.1097/aud.0000000000000118](https://doi.org/10.1097/aud.0000000000000118)

- 5 Monasta L, Ronfani L, Marchetti F, et al. Burden of disease caused by otitis media: Systematic review and global estimates. *PLoS One* 2012; 7(4): 1–12. doi:10.1371/journal.pone.0036226
- 6 Stevens G, Flaxman S, Brunskill E, et al. Global and regional hearing impairment prevalence: an analysis of 42 studies in 29 countries. *Eur J Public Health* 2013; 23(1): 146–152. doi:10.1093/eurpub/ckr176
- 7 Mahadevan M, Navarro-Locsin G, Tan H, et al. A review of the burden of disease due to otitis media in the Asia-Pacific. *Int J Pediatr Otorhinolaryngol* 2012; 76(5): 623–635. doi:10.1016/j.ijporl.2012.02.031
- 8 Dickinson LJ, Nimmo M, Morton RP, et al. 'Asymptomatic' South Auckland preschool children have significant hearing loss and middle ear disease. *Int J Pediatr Otorhinolaryngol* 2018; 114(August): 106–110. doi:10.1016/j.ijporl.2018.08.034
- 9 Paterson JE, Carter S, Wallace J, et al. Pacific Islands families study: The prevalence of chronic middle ear disease in 2-year-old Pacific children living in New Zealand. *Int J Pediatr Otorhinolaryngol* 2006; 70(10): 1771–1778. doi:10.1016/j.ijporl.2006.06.001
- 10 Purdy SC, Taylor S, Schluter PJ, et al. Hearing and ear status of Pacific children aged 11 years living in New Zealand: the Pacific Islands families hearing study. *Int J Audiol* 2018; 58(2): 77–86. doi:10.1080/14992027.2018.1506170
- 11 Thorne PR, Holt EA-L, Nosa V, et al. Provision of hearing care in Pacific Island countries and territories. *Bull World Health Organ* 2019; 97(10): 719–721. doi:10.2471/BLT.18.224600
- 12 Health Quality & Safety Commission. Bula Sautu: a window on quality 2021: Pacific health in the year of COVID-19. 2021. <https://www.hqsc.govt.nz/resources/resource-library/bula-sautu-a-window-on-quality-2021-pacific-health-in-the-year-of-covid-19-bula-sautu-he-mata-kounga-2021-hauora-pasifika-i-te-tau-covid-19/>
- 13 Anderson A, Peat B, Ryland J, et al. Mismatches between health service delivery and community expectations in the provision of secondary prophylaxis for rheumatic fever in New Zealand. *Aust N Z J Public Health* 2019; 43(3): 294–299. doi:10.1111/1753-6405.12890
- 14 Demant MN, Larsen CVL, Homøe P. Parental perceptions and management strategies for otitis media in Greenland. *Int J Pediatr Otorhinolaryngol* 2019; 125(April): 15–22. doi:10.1016/j.ijporl.2019.06.013
- 15 Poole NF, Skilton MK, Martin TCP, et al. Knowledge, attitudes, beliefs and practices related to chronic suppurative otitis media and hearing impairment in Pokhara, Nepal. *J Laryngol Otol* 2016; 130(1): 56–65. doi:10.1017/S0022215115002996
- 16 Narayansamy M, Ramkumar V, Nagarajan R. Knowledge and beliefs about ear and hearing health among mothers of young children in a rural community in South India. *Asia Pacific Disabil Rehabil J* 2014; 25(4): 119–135. doi:10.5463/DCID.v25i4.328
- 17 Hansen MP, Howlett J, Del Mar C, et al. Parents' beliefs and knowledge about the management of acute otitis media: a qualitative study. *BMC Fam Pract* 2015; 16(1): 82. doi:10.1186/s12875-015-0297-7
- 18 Chando S, Young C, Craig JC, et al. Parental views on otitis media: systematic review of qualitative studies. *Eur J Pediatr* 2016; 1295–1305. doi:10.1007/s00431-016-2779-6
- 19 Reddy R, Nosa V, Mafi I, et al. Attitudes to noise and behaviour towards hearing protection among Pasifika university students in New Zealand. *Kotuitui* 2021; 16(2): 324–334. doi:10.1080/1177083X.2020.1865418
- 20 Kaspar A, Newton O, Kei J, et al. Parental knowledge and attitudes to childhood hearing loss and hearing services in the Solomon Islands. *Int J Pediatr Otorhinolaryngol* 2017; 103(July): 87–92. doi:10.1016/j.ijporl.2017.10.003
- 21 Olusanya BO, Luxon LM, Wirz SL. Maternal views on infant hearing loss in a developing country. *Int J Pediatr Otorhinolaryngol* 2006; 70(4): 619–623. doi:10.1016/j.ijporl.2005.08.004
- 22 Thaman KH. Decolonizing Pacific studies: Indigenous perspectives, knowledge, and wisdom in higher education. *Contemp Pac* 2003; 15(1): 1–17. doi:10.1353/cp.2003.0032
- 23 Stats NZ. Tatauranga Aotearoa. Niuean Ethnic Group; 2018. Available at <https://www.stats.govt.nz/tools/2018-census-ethnic-group-summaries/niuean> [Accessed 22 March 2022]
- 24 World Health Organization. Niue- Our Work. 2022. Available at <https://www.who.int/niue/our-work>.
- 25 Vaoleti TM. Talanoa research methodology: a developing position on Pacific research. *Waikato J Educ* 2006; 12: 21–34. doi:10.15663/wje.v12i1.296
- 26 Fa'avae D, Jones A, Manu'atu F. Talanoa'i 'a e talanoa- talking about talanoa: some dilemmas of a novice researcher. *AlterNative* 2016; 12(2): 138–150. doi:10.20507/AlterNative.2016.12.2.3
- 27 Vilitama MJD. On Becoming a Liquid Church: Singing the Niuean "Fetulaga Kerisiano" on a Distant Shore. PhD Thesis, Charles Sturt University, Australia; 2015. pp. 1–325. Available at <https://researchoutput.csu.edu.au/en/publications/on-becoming-a-liquid-church-singing-the-niuean-fetuiaga-kerisiano->
- 28 Palinkas L, Horwitz S, Green C, et al. Purposeful sampling for qualitative data collection and analysis in mixed method implementation research. *Adm Policy Ment Heal Serv Res* 2015; 42: 533–544. doi:10.1007/s10488-013-0528-y
- 29 Creswell J, Clark VL. Designing and Conducting Mixed Methods Research, 2nd edn. Thousand Oaks, CA, USA: SAGE Publications; 2011.
- 30 Francis JJ, Johnston M, Robertson C, et al. What is an adequate sample size? Operationalising data saturation for theory-based interview studies. *Psychol Heal* 2009; 25(10): 1229–1245. doi:10.1080/08870440903194015
- 31 Braun V, Clarke V. Using thematic analysis in psychology. *Qual Res Psychol* 2006; 3(2): 77–101. doi:10.1191/1478088706qp0630a
- 32 Finnegan R, Orbell M. South Pacific Oral Traditions. Indianapolis, USA: Indiana University Press; 1995.
- 33 Huakau G, Bray A. "Talking Disabilities" from a Pacific Perspective. Dunedin: Donald Beasley Institute; 2000. Available at <https://www.worldcat.org/title/talking-disabilities-from-a-pacific-perspective/oclc/50854989>
- 34 Macpherson C, Macpherson L. Samoan Medical Belief and Practice. Auckland: Auckland University Press; 1990.
- 35 Ludeke M, Puni R, Cook L, et al. Access to general practice for Pacific peoples: a place for cultural competency. *J Prim Heal Care* 2012; 4: 123–130. doi:10.1071/HC12123
- 36 Teevale T, Denny S, Percival T, et al. Pacific secondary school students' access to primary health care in New Zealand. *N Z Med J* 2013; 126(1375): 58–68.
- 37 Foliaki S, Matheson A. Barriers to cervical screening among Pacific women in a New Zealand urban population. *Asian Pac J Cancer Prev* 2015; 16(4): 1565–1570. doi:10.7314/APJCP.2015.16.4.1565
- 38 Reddy R, Welch D, Lima I, et al. Identifying hearing care access barriers among older Pacific Island people in New Zealand: a qualitative study. *BMJ Open* 2019; 9(8): e029007. doi:10.1136/bmjopen-2019-029007
- 39 Krug E, Cieza A, Chadha S, et al. Childhood Hearing Strategies for Prevention and Care. Geneva; 2016. Available at [https://apps.who.int/iris/bitstream/handle/10665/204632/9789241510325\\_eng.pdf?sequence=1&isAllowed=y](https://apps.who.int/iris/bitstream/handle/10665/204632/9789241510325_eng.pdf?sequence=1&isAllowed=y). ISBN 978 92 4 151032 5
- 40 World Health Organization. World Report on Hearing. Geneva, Switzerland: World Health Organization; 2021. ISBN: 9789240020481. Licence: CC BY-NC-SA 3.0 IGO.
- 41 Chadha S, Cieza A. World Health Organization and its initiative for ear and hearing care. *Otolaryngol Clin North Am* 2018; 51(3): 535–542. doi:10.1016/j.otc.2018.01.002
- 42 Holt EA-L, McCool J, Nosa V, et al. Development of an otitis media strategy in the Pacific: key informant perspectives. *N Z Med J* 2018; 131(1475): 69–76.
- 43 World Health Organization, Regional Office for the Western Pacific. Health Information Systems in the Pacific at a Glance 2016. WHO Regional Office for the Western Pacific; 2017. ISBN: 9789290618195.
- 44 Ministry of Social Development. Nga Vaka o Kāiga Tapu: A Pacific Conceptual Framework to Address Family Violence in New Zealand. 2012. <https://pasefikaproud.co.nz/resources/nga-vaka-o-kaiga-tapu/>. ISBN: 592753
- 45 World Health Organization, Secretariat of the Pacific Community, Fiji Ministry of Health and Medical Services. The Healthy Islands Journey (1995–2015): Achievements, Challenges and Way Forward. 2015. [https://health.gov.fj/wp-content/uploads/2015/04/PIC11-3\\_Healthy-islands-journey-1995-2015.pdf](https://health.gov.fj/wp-content/uploads/2015/04/PIC11-3_Healthy-islands-journey-1995-2015.pdf)
- 46 Sanders M, Houghton N, Dewes O, et al. Estimated prevalence of hearing loss and provision of hearing services in Pacific

- Island nations. *J Prim Heal Care* 2015; 7(1): 5–15. doi:[10.1071/hc15005](https://doi.org/10.1071/hc15005)
- 47 Ministry of Health. Universal Newborn Hearing Screening for New Zealand 2005: A Report of the Universal Newborn Hearing Screening Advisory Group to the National Screening Unit. Wellington: Ministry of Health; 2005.
- 48 Helu-Thaman K. Cultural democracy for whom? A view from the Pacific Islands. [Keynote address] Conference of the International Association for Intercultural Education; May 19–24, 1994: pp. 3–19. Adelaide, Australia. <https://citeseerx.ist.psu.edu/viewdoc/download;jsessionid=D798A6A2282381D018B04477BFB4BAB2?doi=10.1.1.463.9062&rep=rep1&type=pdf>

**Data availability.** The data that support this study cannot be publicly shared due to ethical or privacy reasons and may be shared upon reasonable request to the corresponding author if appropriate.

**Conflicts of interest.** The authors declare there are no potential, perceived, or real competing interests relating to this work.

**Declaration of funding.** Funders played no role in this paper's study design, data collection, analysis, interpretation, or writing. EH was a recipient of a University of Auckland PhD Health Research Scholarship to complete this work.

**Acknowledgements.** The authors acknowledge the significant contribution of all the interview participants to this study. The authors also acknowledge Grizelda Mokoia, Clivenn Naepi, Birta Togahai, the Niue Health Department, and the Niue Government for approval to do this research in Niue. This paper forms part of the PhD Thesis 'Ear Disease and Hearing Loss in Young Children in Niue' of Elizabeth Anne-Louise Holt (2020).

#### Author affiliations

<sup>A</sup>Section of Audiology, School of Population Health, Faculty of Medical and Health Sciences, University of Auckland, Private Bag 92019, Auckland 1142, New Zealand.

<sup>B</sup>Eisdell Moore Centre for Hearing and Balance Research, Faculty of Medical and Health Sciences, University of Auckland, Private Bag 92019, Auckland 1142, New Zealand.

<sup>C</sup>Section of Pacific Health, School of Population Health, Faculty of Medical and Health Sciences, University of Auckland, Private Bag 92019, Auckland 1142, New Zealand.

<sup>D</sup>Section of Epidemiology and Biostatistics, School of Population Health, Faculty of Medical and Health Sciences, University of Auckland, Private Bag 92019, Auckland 1142, New Zealand.