

# The role of health promotion in the development of ear and hearing health services in the Pacific Islands : A literature review

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## Abstract

The Pacific Islands have among the highest rates of ear disease and hearing loss in the world. Ear and hearing health services are limited in this region; however, a significant proportion of avoidable hearing loss and disability may be addressed through public health promotion activities. In order to develop appropriate hearing health education campaigns and promotion initiatives, knowledge and attitude studies among target population groups are vital. This review aimed to summarize the research literature on knowledge and attitude to ear disease and hearing loss in the Pacific Islands in order to develop appropriate health promotion campaigns for our context in Samoa. PubMed and ScienceDirect databases were searched for relevant journal articles. Key search terms were 'Pacific Islands', 'ear disease', 'hearing loss', 'knowledge', 'attitudes', and their relevant synonyms. There was no limit on the date of publication. Only one journal article met the review criteria. Parental knowledge and attitude to childhood hearing loss and hearing services in the Solomon Islands was overwhelmingly positive (96%–99.3%). There was high parental awareness of ear disease as a cause of hearing loss among children (94%) and high parental awareness of public health initiatives aimed at reducing ear disease and hearing loss such as routine childhood immunizations (84%) and breastfeeding (76%). Knowledge and attitude studies among key stakeholders are needed to develop appropriate health promotion activities to reduce the preventable causes of hearing loss in the Pacific Islands. Health promotion activities should prioritize major public health issues of ear disease and noise-induced hearing loss.

## Keywords

Epidemiology/public health, infectious diseases, otolaryngology

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## Introduction

According to the World Health Organization, the Pacific Islands are estimated to have among the highest rates of ear disease and hearing loss in the world.<sup>1</sup> Among children, in particular, middle ear infections and vaccine-preventable diseases are a major cause of avoidable hearing loss.<sup>2</sup> Given the limited ear and hearing health services in this region,<sup>3,4</sup> a public health approach to reducing the burden of ear disease and hearing loss is advocated.<sup>2,5</sup> Collaboration with health promotion services is essential to achieving this endeavour.

A significant proportion of ear disease and hearing loss in the Pacific Islands may be prevented through well-planned and contextually appropriate public health promotion initiatives. Although the development of Ear, Nose & Throat (ENT) and audiology services is desirable, the ultimate goal

is to reduce the number of cases requiring hospital and tertiary-level care. For the paediatric population, strategies that will reduce the prevalence of ear disease and hearing loss are already on the health education agenda and include promotion of routine childhood immunizations, breastfeeding, good nutrition, and improved hygiene and sanitation.<sup>6</sup> Hearing health campaigns may be developed further to

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include greater focus on other public health concerns such as environmental/recreational noise-induced hearing loss.

The aim of this review is to describe the existing literature on knowledge and attitude to ear disease and hearing loss in the Pacific Islands. The results should assist our country Samoa to develop health promotion activities appropriate to our context. The ENT Clinic of Tupua Tamasese Meaole Hospital is currently undergoing a project to expand their services, and collaboration with the Health Promotion Division to improve national awareness on avoidable causes of ear disease and hearing loss is a critical component of our project. Our experience may serve as a model for other Pacific Island nations, or indeed any other country in similar circumstances to our own.

## Methods

A literature review was conducted using the PubMed and ScienceDirect databases. The main search strategy used the terms and keywords ‘Pacific Islands’, ‘ear disease’, ‘hearing loss’, ‘knowledge’, ‘attitude’, and their relevant synonyms (i.e. ‘otitis media’, ‘hearing impairment’): ‘Pacific Islands’[MeSH Terms] OR (‘Pacific’[All Fields] AND ‘Islands’[All Fields]) OR ‘Pacific Islands’[All Fields]; ‘hearing loss’[MeSH Terms] OR (‘hearing’[All Fields] AND ‘loss’[All Fields]) OR ‘hearing loss’[All Fields]; ‘otitis media’[MeSH Terms] OR (‘otitis’[All Fields] AND ‘media’[All Fields]) OR ‘otitis media’[All Fields]. Following this search strategy, titles and abstracts were read and reviewed and, when appropriate, included for further study. The selected articles were read completely, and their references were hand-searched.

### *Inclusion/exclusion criteria*

The following inclusion criteria were used to assess article suitability for this review: <sup>(1)</sup> the study population was Pacific Islander, <sup>(2)</sup> the study population resided in the Pacific Islands, and <sup>(3)</sup> the study reported knowledge and/or attitude outcomes to ear disease and/or hearing loss. There was no limit on the date of publication.

## Results

The literature review found only one journal article for inclusion in the present study. A 25-item questionnaire was administered to 100 mothers and 50 fathers attending Child Welfare Clinics in Honiara, the capital city of the Solomon Islands.<sup>7</sup> The study found that parents were overwhelmingly supportive of community-based ear and hearing health services for infants and school-aged children (96%–99.3%).<sup>7</sup> This aligns with similar studies from other low- and middle-income countries.<sup>8</sup> There was also excellent knowledge of middle ear infections as a major cause of hearing loss in the Solomon Islands (94%), which is higher than reported from other studies. There was also high awareness of the public health interventions that reduce the risk of middle ear disease, such as

routine childhood immunizations (84%) and breastfeeding (76%). The study found that maternal and peri-natal risk factors for permanent hearing loss were not well known and that non-biomedical cultural beliefs persisted in the population regarding childhood hearing loss. A limitation of the study was that the study population was urban only, and comparison with results from a rural/remote population would be important to guide health promotion activities. The authors noted that while there may be similarities between Pacific Island cultures, best practice mandates that evidence is required for each Pacific Island country to ensure the unique features of each culture are considered.<sup>9</sup>

Another journal article was considered for inclusion in the present study. The article reported the findings of an investigation into the perspectives of key informants for the development of a middle ear infection strategy in the Pacific Islands.<sup>10</sup> The researchers interviewed 12 participants (four of whom were Pacific Islanders) who were either professionals with middle ear infection program experience and/or professionals with experience of working in the Pacific Island region. We excluded this article given that it is of limited benefit to formulating ear and hearing health promotion strategies for Pacific Islander populations.

## Discussion

The review revealed that there is very little literature on knowledge and attitudes among stakeholders for ear disease and hearing loss in the Pacific Islands. The study available suggests that there is currently goodwill and support to address ear and hearing health from parents in one Pacific Island country. Given that ear and hearing health professionals are limited in the Pacific Islands, collaboration with health promotion services is advocated to facilitate a public health approach to avoidable ear disease and hearing loss. Knowledge and attitude studies are further advocated to ensure that health campaign messaging achieves maximum effectiveness.

For our context in Samoa, preparations are underway to perform knowledge and attitude studies to address the following three main public health issues in our country:

### *Addressing paediatric ear disease and hearing loss*

The key stakeholders for studies on knowledge and attitudes to ear disease and hearing loss among children are parents/family, health professionals, and teachers/educators. Based on the original study from the Solomon Islands, an assessment of parental knowledge in both urban and rural/remote Samoa should inform health promotion policy-makers whether health promotion activities need to be tailored to each district or whether a universal campaign for Samoa is the most appropriate option. The findings may be translatable to other health issues.

Health professionals are key players in early identification, intervention, and support for children with hearing loss.<sup>11</sup>

Although there may be a perception that hearing loss is a neglected condition due to the urgency of other life-threatening conditions, the research from low- and middle-income countries suggests that health professionals generally agree that ear disease and hearing loss is a major concern that should be tackled.<sup>11</sup> Based on the original study from Nigeria, an assessment of health professional knowledge on ear disease and hearing loss in Samoa should inform continuing professional education activities, improve primary ear and hearing care, and facilitate timely referral to specialist services.

Teachers and other educators may also be among the first people to suspect hearing difficulties in children.<sup>12</sup> A significant proportion of young students may experience mild to moderate transient hearing loss in association with ear disease, as demonstrated in a recent study from the Solomon Islands.<sup>13</sup> Based on the original study from South Africa, an assessment of the knowledge and attitudes of teachers should guide their professional education activities regarding inclusive education and improve referrals to primary and specialist ear and hearing care.

### Addressing noise-induced hearing loss

Permanent hearing loss from excessive recreational or environmental noise exposure is a major public health concern worldwide, especially among adolescents and young adults.<sup>14</sup> Aside from the associated hearing difficulties, excessive noise exposure also causes tinnitus, headaches, sleep deprivation and poor concentration. People suffering from noise-induced hearing loss will usually present to ear and hearing health professionals only once the damage is irreversible. Collaboration with the Health Promotion Department for this avoidable cause of permanent hearing loss is, therefore, needed in order to develop timely, effective, and culturally appropriate prevention campaigns. Based on previous research work from Brazil, a study regarding the attitudes of high school and university students towards recreational and environmental noise will be performed in Samoa.<sup>15</sup> Health promotion activities aimed at behavioural change among this age group should have the greatest impact on preventing noise-induced hearing impairment rates in the future. This is also an opportunity for health promotion officers to lead the implementation of policies and regulations for all public spaces exposed to excessive noise levels (i.e. music festivals).

### Limitations of this review

The aim of this review was very specific, and thus only one journal article satisfied our inclusion criteria. The research from low- and middle-income countries on this topic is also limited, and the few papers that are available are included in the above discussion to support the case for similar studies in the Pacific Islands.

## Conclusion

The research literature on knowledge and attitude studies towards ear disease and hearing loss in the Pacific Islands is virtually non-existent. Knowledge and attitude studies among key stakeholders is needed to develop appropriate health promotion activities to reduce the preventable causes of hearing loss in the Pacific Islands. Health promotion activities should prioritize major public health issues of hearing difficulties associated with ear disease and noise-induced hearing loss.

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## References

1. WHO. WHO global estimates on prevalence of hearing loss, 2018, <https://www.who.int/pbd/deafness/estimates/en/>
2. Kaspar A, Kei J, Driscoll C, et al. Overview of a public health approach to pediatric hearing impairment in the Pacific Islands. *Int J Pediatr Otorhinolaryngol* 2016; 86: 43–52.
3. Sanders M, Houghton N, Dewes O, et al. Estimated prevalence of hearing loss and provision of hearing services in Pacific Island nations. *J Prim Health Care* 2015; 7: 5–15.
4. Thorne PR, Holt EAL, Nosa V, et al. Provision of hearing care in Pacific Island countries and territories. *Bullet World Health Org* 2019; 97: 719–721.
5. Kaspar A, Newton O, Kei J, et al. A public health approach to pediatric hearing impairment in the Pacific Islands. *J Glob Health* 2018; 8: 010302.
6. WHO. WHO south Pacific 2018, <http://www.wpro.who.int/southpacific/en/>
7. 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: 87–92.
8. Ravi R, Gunjawate DR, Yerraguntla K, et al. Knowledge and attitude of parents/caregivers towards hearing loss and screening in newborns: a systematic review. *Int J Audiol* 2016; 55(12): 715–722.
9. Byford J and Veenstra N. The importance of cultural factors in the planning of rehabilitation services in a remote area of Papua New Guinea. *Disability and Rehabilitation* 2004; 26(3): 166–175.
10. Holt EAL, 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.

11. Ravi R, Gunjawate DR, Yerraguntla K, et al. Systematic review of knowledge of, attitudes towards, and practices for newborn hearing screening among healthcare professionals. *Int J Pediatr Otorhinolaryngol* 2018; 104: 138–144.
12. Yousuf Hussein S, Swanepoel W, Biagio de Jager L, et al. Knowledge and attitudes of early childhood development practitioners towards hearing health in poor communities. *Int J Pediatr Otorhinolaryngol* 2018; 106: 16–20.
13. Kaspar A, Newton O, Kei J, et al. Prevalence of ear disease and associated hearing loss among primary school students in the Solomon Islands: otitis media still a major public health issue. *Int J Pediatr Otorhinolaryngol* 2018; 113: 223–228.
14. WHO. *Safe listening devices and systems: a WHO-ITU standard*. Geneva: World Health Organization & International Telecommunication Union, 2019, <https://apps.who.int/iris/bitstream/handle/10665/280085/9789241515276-eng.pdf>
15. Keppler H, Dhooge I and Vinck B. Hearing in young adults – part I: the effects of attitudes and beliefs toward noise, hearing loss, and hearing protector devices. *Nois Healt* 2015; 17(78): 237–244.