

Knowledge and attitudes of schoolteachers in the Pacific Islands to childhood hearing loss and hearing services: A national survey protocol for Samoa

SAGE Open Medicine

Volume 9: 1–7

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DOI: 10.1177/20503121211041518

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Abstract

Objectives: The Pacific Island region is estimated to have among the highest rates of childhood ear disease and hearing loss in the world. The adverse effects of childhood hearing loss include delayed speech/language development, learning difficulties, and reduced social-emotional well-being. Schoolteachers and early childhood educators are among the first professionals who may suspect hearing loss in their young students, and they are well-placed to initiate referrals to appropriate health services. Given the current efforts to implement Inclusive Education in the Pacific Islands, teachers are also uniquely positioned to positively influence, support, and advocate for a child with hearing loss in their classroom. There are no previous studies on this topic from the Pacific Island region.

Methods: The study will use a national survey and convenience sampling design. Teachers attending the Annual Teachers Conference in Samoa will be invited to independently and anonymously completed a 23-item questionnaire on childhood hearing loss and hearing services. Questions are in English, with a Samoan translation provided. The participating teachers will be required to respond with “yes,” “no,” or “unsure,” and to mark their response on the questionnaire. The questions assess knowledge of biomedical etiology of hearing impairment, knowledge of the adverse impacts of hearing loss on childhood development, knowledge of hearing loss identification and intervention, and attitudes toward children with a hearing impairment.

Results: Not applicable for a study protocol.

Conclusion: We publish these protocols to facilitate similar studies in other low- and middle-income countries, and especially among our Pacific Island neighbors.

Keywords

Inclusive education, Pacific Islands, ear, hearing, teacher knowledge, teacher attitude, children, public health

Date received: 1 June 2021; accepted: 5 August 2021

Introduction

The Pacific Island region is estimated to have among the highest rates of otitis media (OM) and hearing loss in the world.^{1–3} Among children in particular, the burden of disease and disability may be avoided through improved public health measures and timely referral to health practitioners. The adverse effects of childhood hearing loss are well-documented, and include delayed speech/language development, learning difficulties, and reduced social-emotional well-being. Schoolteachers and early childhood educators are among the first professionals who may suspect hearing loss in their young students, and they are well-placed to initiate referrals to appropriate health services. They are also uniquely

positioned to positively influence, support, and advocate for a child with hearing loss in their classroom.

Samoa is a Polynesian country of the Pacific Islands (Figure 1). In alignment with other nations of this region, Samoa has committed to implementing Inclusive Education

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Figure 1. Map of Samoa.

Source: Adapted from the World Health Organization—freely available online.

under the Sustainable Development Goal (SDG) Project. This commitment should consider strategies that best support a student with hearing loss in the classroom. While attention is often focused on the student with a severe to profound permanent hearing impairment who requires amplification devices, Inclusive Education strategies should not neglect the significant proportion of primary school students with a mild to moderate transient hearing loss due to ear disease. Improved knowledge and awareness of schoolteachers and educators regarding the different types of hearing disorders and their interventions should greatly improve educational outcomes for all students.

A review of the audiology literature revealed a limited number of studies from low- and middle-income countries (LMICs) investigating the knowledge and attitudes of teachers to childhood hearing loss. An early paper suggests that attitudes of teachers toward hearing-impaired children in LMICs are usually negative.⁴ However, a recent study from South Africa reported that 81.5% of early childhood educators agreed that children with hearing loss can attend school, but 67.5% stated that children with hearing loss should attend special schools.⁵ There are no studies of this kind from the Pacific Islands.

The Ear, Nose, and Throat (ENT) Clinic of Tupua Tamasese Meaole Hospital in Samoa is currently developing their outreach services to improve the ear and hearing health of school-aged children. Schoolteachers and educators are among the key collaborators in the successful identification and intervention for students with hearing loss. To this end, this study aims to assess the current knowledge and attitudes among teachers in Samoa to childhood hearing loss. The results of the study should guide professional development

activities, as well as inform strategies toward Inclusive Education in Samoa. This study may serve as a model for other Pacific Islands in similar circumstances.

Our aim in publishing this study protocol is to facilitate similar studies of this kind, especially among our Pacific Island neighbors. Given the scarcity of ear and hearing health specialists in the Pacific Islands, teachers and early childhood educators are key partners in the battle to reduce preventable ear disease and hearing loss among children, and to promote Inclusive Education for students with a temporary or permanent hearing impairment.

Methods/design

Planning and preparation

Ethical approval. This study was approved by the Government of Samoa Ministry of Health Ethical Research Committee and the University of Queensland Medical Ethics Research Committee (approval no. 2020000255). Gatekeeper approval was obtained from the Ministry of Education, Sports, and Culture (MESCC).

Aim. The aim of this study is to assess the current knowledge and attitudes of teachers in Samoa to childhood hearing loss and hearing services. The results will contribute to current efforts regarding the implementation of Inclusive Education, and guide continuing professional development activities for teachers that should positively influence the ear and hearing health of their students. The results will also provide baseline data for comparison with subsequent surveys, and enable the assessment of the effectiveness of continuing professional development activities.

We hypothesize the following:

- Knowledge of Samoan teachers regarding causes of hearing loss will be over 80%.
- Knowledge of Samoan teachers regarding the adverse impacts of childhood hearing loss will be over 80%.
- Knowledge of Samoan teachers ear and hearing health services will be above 80%.
- Positive attitudes of Samoan teachers toward children with hearing loss will be above 80%.
- No significant difference in teacher knowledge and attitudes to childhood hearing loss and hearing services will be found between male and female teachers in Samoa.
- No significant difference in teacher knowledge and attitudes to childhood hearing loss and hearing services will be found between urban and rural/remote Samoa.
- No significant difference in teacher knowledge and attitudes to childhood hearing loss and hearing services will be found between age groups in Samoa.

- No significant difference in teacher knowledge and attitudes to childhood hearing loss and hearing services will be found between years of service groups in Samoa.
- No significant difference in teacher knowledge and attitudes to childhood hearing loss and hearing services will be found between early childhood/pre-school, primary, and high school teachers in Samoa.

Personnel. The study will be led by the research audiologist (A.K.) and the head of ENT Clinic (S.P.), and we will work in collaboration with the Principal Inclusive Education Officer from the Samoan Ministry of Education, Sports, and Culture. Data analysis will be performed in collaboration with the Hearing Research Unit for Children at the University of Queensland (Australia) and includes consultation with a biostatistician (C.D.).

Design. The study will use a national survey and convenience sampling design. Given time and resource restrictions, this is the most effective study design.

Setting. The study will take place during the 2021 Annual Teachers Conference in Samoa.

Participants. The study population will consist of all Samoan teachers attending the 2021 Annual Teachers Conference. There are currently 2885 teachers in Samoa: 423 Early Childhood Education, 1427 Primary School, and 1035 Secondary School. All teachers are eligible for participation in the study.

Assessment tool: questionnaire. The assessment tool will be the same questionnaire that was used in a recent South African study.⁵ While there is no formal validation of this questionnaire, it is the only assessment tool of this kind that is suitable for our purposes. The ENT Clinic team reviewed the questionnaire and decided that no modifications were required. There are 23 questions requiring a Yes/No/Unsure response from participants. The research team judged it appropriate to administer the questionnaire in English, with a Samoan translation provided (Table 1). The questionnaire will be completed independently and anonymously by the participants.

Equipment and consumables. All requirements, as listed below, will be contained within a simple plastic folder for utilization by the research team:

- Information Sheet for Participants (English)—Teacher Knowledge and Attitudes to Childhood Hearing Loss and Hearing Services in Samoa.
- Group Participant Consent Form (English)—Teacher Knowledge and Attitudes to Childhood Hearing Loss and Hearing Services in Samoa.

- Questionnaire (English/Samoan)—Teacher Knowledge and Attitudes to Childhood Hearing Loss and Hearing Services in Samoa.
- “Ballot Box” for completed questionnaires.
- Staff member business cards with contact details.
- Pens.

N.B. To reduce the cost of consumables, a laminated copy of the information sheet and five non-laminated copies only will be in the study folder (information sheets to be kept by individuals only if requested). To further reduce the cost of consumables, each participant will sign a group consent form as they return their completed questionnaire.

Conducting the study

The recommended workflow on the days of data collection is summarized in Figure 2.

Recruitment of participants and consent. On the day of data collection, the Principal Inclusive Education Officer will make an announcement about the study to the Annual Teachers Conference attendees. The announcement will introduce the members of the research team, and then describe the aims of the project (Participant Information Sheet) and the participant requirements (including signing the Group Participant Consent Form when completed questionnaire is returned to the research team). Attendees will then be invited to participate in the study. The study questionnaire will be distributed to all willing participants.

Administration of questionnaire

Demographic information. The Principal Inclusive Education Officer will instruct the participants to complete demographic information on their questionnaire as follows:

- Circle male/female as appropriate.
- Age (in years).
- Years of service (in years).
- Circle location of school where they currently teach: urban/rural/remote.
- Circle level of school they currently teach: early childhood education/primary/secondary.

Questionnaire. The participants will then be instructed to read the questions, and to respond to each item (23 questions) by placing an “X” in the Yes/No/Unsure options as appropriate. The research team will emphasize that responses should be made privately and independently. The research team will be available to answer any questions should the instructions or the study questionnaire be unclear.

Upon completion of the questionnaire, the participants will be instructed to sign the Group Consent Form, and to place their completed questionnaire into the “ballot box” provided by the research team.

Table 1. Teacher knowledge and attitudes to Childhood Hearing Loss and Hearing Services Study Questionnaire.

Male/female age: _____ and years of service: _____.

School location: urban/rural/remote and school level: early childhood/primary/secondary.

Question/Fesili	Yes/loe	No/Leai	Unsure/Le maotinoa
1. Worked with a child with hearing loss. <i>Galulue ma fanau e iai aafiaga tumau i le faalogo.</i>			
2. Child with hearing loss in current school. <i>O le Tamaitiiti e iai aafiaga tumau i le faalogo i le Aoga nei.</i>			
3. Hearing loss is an important problem. <i>O le fa'aletonu o le fa'alogo, o se fa'afitauli e taua tele e tatau ona fa'aleleia</i>			
4. Healthy hearing is important. <i>O le soifua maloloina o le faalogo e taua tele.</i>			
5. Children can be born with a hearing loss. <i>E mafai ona ola mai fanau ma aafiaga tumau i le faalogo.</i>			
6. Certain illnesses can cause a hearing loss. <i>O faaletonu o le fa'alogo e mafai ona pogai mai ona o isi faamai</i>			
7. Ear infection can cause a hearing loss. <i>O aafiaga o taliga i faama'i pipisi e mafai ona aafia ai ma le faalogo.</i>			
8. Hearing loss can affect some children more than others. <i>O le faalogo e mafai ona tele lona aafiaga i ni isi tamaiti nai lo isi.</i>			
9. Hearing loss is common in young children. <i>O aafiaga i le faalogo e taatele i fanauiti.</i>			
10. Hearing loss can be identified at any age. <i>O le aafiaga o le faalogo e mafai ona maua ai soo se tasi.</i>			
11. Children (3–6 years of age) can be accurately diagnosed with a hearing loss. <i>O fanau ei le va o le 3 i le 6 tausaga e maotinoa e mafai ona iloiloina ma faamaonia e iai le aafiaga tumau i le faalogo.</i>			
12. Hearing loss can be treated. <i>O le aafiaga tumau i le faalogo e mafai ona togafitia.</i>			
13. Children with hearing loss can attend school. <i>O fanau e iai aafiaga tumau i le faalogo e mafai ona auai i aoaoga.</i>			
14. Children with hearing loss can have the same educational opportunities as normal hearing children. <i>O fanau e iai aafiaga i le faalogo e mafai ona maua avanoa tutusa i aoaoga e pei o fanau e leai ni aafiaga o le faalogo.</i>			
15. Hearing loss impacts listening in the classroom. <i>E aafia le aoaoga i potuaoga pe a le lelei le fa'alogo</i>			
16. Hearing loss impacts speech and language. <i>E aafia le gagana tautala pe a le lelei le fa'alogo.</i>			
17. Hearing loss impacts reading. <i>E aafia le faitautusi pe a le lelei le faalogo.</i>			
18. Hearing loss impacts behavior. <i>E aafia le amio pe a le lelei le faalogo.</i>			
19. Hearing loss impacts interaction with peers. <i>E aafia fesootaiga ma isi pe a le lelei le faalogo.</i>			
20. Would like children to have a hearing test. <i>E moomia ona faia ni suesuega/sailiiliga o le faalogo mo fanau.</i>			
21. Would include children with hearing loss in the classroom. <i>E tatau ona auai fanau e iai aafiaga tumau i le faalogo i vasega.</i>			
22. Children with hearing loss should be referred to special schools. <i>O fanau e iai aafiaga tumau i le faalogo e tatau ona faafesootai/ave i Aoga Faapitoo.</i>			
23. Would like more information on hearing loss. <i>E manaomia ni isi faamatalaga e faatatau i aafiaga tumau o le faalogo.</i>			

Data handling and analysis. All data handling and analysis will be done by the team leader (A.K.). The ballot box with the completed questionnaires will remain closed until data

entry is performed by the team leader at the ENT Clinic. Each questionnaire will be identified by a number written in the top right-hand corner, and this will correspond to the



Figure 2. Knowledge and attitudes of schoolteachers to childhood hearing loss and hearing services in Samoa study: workflow chart.

order in which the questionnaires are removed from the ballot box (i.e. 1, 2, 3, etc.). The team leader will enter de-identified data into the SPSS Statistics software package in a file titled “Teacher Knowledge and Attitudes to Childhood Hearing Loss and Hearing Services in Samoa.” The coding strategy for data entry and analysis is provided in Table 2. The team leader will analyze the data to provide the following information.

Demographic information. A descriptive analysis will be performed for the total number of participants, and number/proportion of teachers according to age and gender. The analysis will include age range (mean value and standard deviation) for the total number of participants, as well as for each subgroup. Results will be presented in tabulated form using a cross-analysis (i.e. age subgroup \times gender).

A descriptive analysis will also be performed for the number/proportion of teachers according to teaching level (early childhood education/primary/secondary) and school location

(urban/rural/remote). Results will again be presented in tabulated form using a cross-analysis (i.e. teaching level \times school location \times years of service).

Analysis of variables. For each item of the questionnaire, the number of participants answering “Yes,” “No,” or “Unsure” will be tallied. Chi-Squared Linear-By-Linear Association tests will be performed to investigate for any significant associations between response proportions (Yes/No/Unsure) and gender, age groups, years of service, school locations, and teaching levels, respectively. The results will be presented in tabulated form, and any significant findings will be highlighted.

Discussion

The results of this study will be prepared as a research paper for submission to a peer-reviewed journal. The study from South Africa was published in the *International Journal of*

Table 2. Teacher knowledge and attitudes to childhood hearing loss and hearing services in Samoa: coding strategy for data entry and analysis.

Item	Description	Code
Participant ID	Numeric code in order of participation	1, 2, etc.
Gender	Male	1
	Female	2
Age group	25 years and younger	1
	26–35	2
	36–45	3
	46–55	4
	56+	5
Years of teaching	0–10	1
	11–20	2
	21–30	3
	31–40	4
	41+	5
Teaching level	Early childhood	1
	Primary	2
	Secondary	3
School location	Urban	1
	Rural	2
	Remote	3
Response	Yes	1
	No	2
	Not sure	3

Pediatric Otorhinolaryngology. Other options under consideration at this time include the *International Journal of Inclusive Education* and the *International Journal of Audiology*. The published paper will be also be delivered to the Government of Samoa Ministry of Health and MESC and will include an action plan for continuing professional development activities for teachers that best support the implementation of Inclusive Education in Samoa.

The Ministry of Health and MESC will prepare a short media release about the study and the results. This will be done in collaboration with the Government of Samoa to ensure information is appropriate and receives maximum population coverage. The aim of the media release is (1) to promote Inclusive Education, (2) to increase community awareness of the adverse effects of ear disease and associated hearing loss on childhood development, and (3) to encourage timely attendance at health services for treatment of ear disease. We include the Participant Information Sheet and Group Participant Consent Form as additional files with this publication to further facilitate similar studies of this kind, especially among our Pacific Island neighbors.

Limitations

The main limitation of this study protocol is that the questionnaire has not been formally translated, culturally

adapted, and validated. This should be performed prior to data collection if possible. Given that this is a national survey, a sample size and power analysis were not performed.

Conclusion

An assessment of the knowledge and attitudes of school-teachers in the Pacific Islands to childhood hearing loss and hearing services is crucial to addressing hearing disorders among students, and facilitating early identification and intervention for students with preventable hearing problems. We publish this study protocol to facilitate similar surveys in other countries, especially among our Pacific Island neighbors.

Acknowledgements

The authors thank Professor De Wet Swanepoel and colleagues for granting permission of the use of their questionnaire in this study.

Author contributions

A.K. wrote the initial draft manuscript, and all authors provided feedback. A.K. performed revisions to the manuscript as appropriate, and all authors read and approved the final manuscript.

Availability of data and materials

All data generated or analyzed during this study will be included in the published article.

Declaration of conflicting interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Ethical approval

This study was approved by the Government of Samoa Ministry of Health Ethical Research Committee and the University of Queensland Medical Ethics Research Committee (approval no. 2020000255). Gatekeeper approval was obtained from the Ministry of Education, Sports, and Culture.

Funding


The author(s) received no financial support for the research, authorship, and/or publication of this article.

Informed consent

On the day of data collection, the Principal Inclusive Education Officer will make an announcement about the study to the Annual Teachers Conference attendees. The announcement will introduce the members of the research team, and then describe the aims of the project (Participant Information Sheet) and the participant requirements (including signing the Group Participant Consent Form when completed questionnaire is returned to the research team). Attendees will then be invited to participate in the study.

The study questionnaire will be distributed to all willing participants.

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