SRI RAMACHANDRA
INSTITUTE OF HIGHER EDUCATION AND RESEARCH
(Deemed to be University)

SRESHT

A SRIHER - INDIA ALLIANCE LAB

SERVICES TO REACH CHILDREN WITH SPEECH&HEARING DISORDERS USING TELEPRACTICE/TECHNOLOGY

ABOUT THE LAB

The SRESHT lab's focus is on translation research that supports meaningful integration of technology (tele-practice) to provide access to early identification and intervention services for children with speech, language and hearing disorders in the rural and semi-urban communities. The lab is conceptualized and led by Dr. Vidya Ramkumar, an India Alliance Intermediate Fellow in Clinical and Public Health Research and Professor at Sri Ramachandra Faculty of Audiology and Speech, Language Pathology @ SRIHER(DU), Chennai.

MISSION

- The geographical distribution and availability of Speech Language therapy and Audiology services is skewed in India and other low middle income countries. Hence needs of a vast population in remote rural and semi urban regions are still unmet.
- Therefore, our projects and implementation support aim to explore alternative models of service delivery with on field collaborators to bridge service gaps.

PRINCIPAL INVESTIGATOR

Dr.Vidya Ramkumar,Ph.D.
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About Dr. Vidya Ramkumar

- Dr. Vidya Ramkumar has spent the last decade working in developing service delivery models using technology to bridge gaps in audiology services in the underserved regions of South India.
- She was recently awarded the Wellcome Trust-DBT India Alliance Clinical and public health fellowship (2020) at the intermediate level to pursue translational research in tele-practice applications in audiology and speech-language pathology services in collaboration with the public sector services in Tamil Nadu. She is also a Fulbright-Nehru Doctoral Professional Research fellowship awardee (2014). Her PhD was in the area of tele-audiological application in rural newborn hearing screening programs in South India.
- She received the NIH sponsored “New investigator award” at the 3rd International Conference on Internet and Audiology, KY, USA in 2017.
- She is a life member of Telemedicine Society of India, Indian Speech and Hearing Association and actively participates in the meetings of these societies.

TEAM

CURRENT PROJECTS

1. **EFFECTIVENESS OF A COMPREHENSIVE TELE-PRACTICE MODEL FOR IDENTIFICATION AND REHABILITATION OF CHILDREN WITH HEARING AND SPEECH-LANGUAGE DISORDERS IN RURAL COMMUNITIES (2020-2025)**

Funded by: DBT/Wellcome Trust India Alliance

Grant Amount: INR 2.56 crores

BACKGROUND:
The Government of Tamil Nadu has taken several measures for early identification and intervention of childhood disabilities. The office of the State Commissioner for Welfare of the Differently Abled, established the District Differently Abled Welfare offices in 1993 in each district to provide early identification of disability and Early Intervention Centers in 2011 to provide special education and therapy for children with disabilities below 6 years of age. These initiatives are significant milestones yet their functionality is limited due to stark contrast in demand versus capacity. In 2015 the ‘Mobile Therapy Unit’ was

implemented to improve consistency of rehabilitation services, increasing last mile coverage. However, this initiative is also challenged by higher demand on professional's time, who are engaged in both clinical services and administrative work.

Tele-practice is the use of information and communication technology to provide health care services. Ramkumar and colleagues validated tele-practice for diagnostic testing using real time tele-Auditory Brainstem Response in a rural district of Tamil Nadu. They later found that it is cost effective to conduct a community-based programme integrated with tele-practice approach. Ramkumar and colleagues also found that a bottom-up grass root level tele-practice approach was successful in achieving better coverage, diagnostic confirmation and early intervention of middle ear diseases in a community-based program for individuals with cleft of lip and palate in two rural districts in Tamil Nadu.These efforts suggest that, integration of a tele-practice approach in community-based programs is likely to be beneficial to both provider and patient.

ABOUT

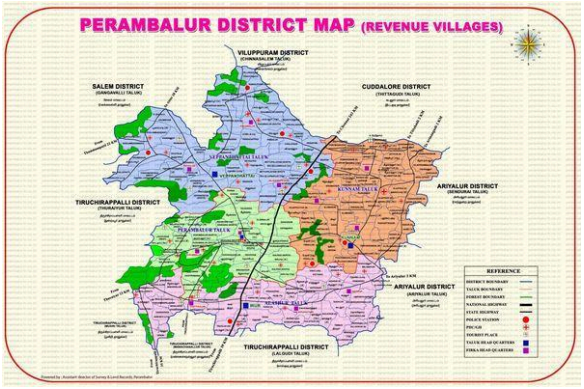
This project aims to develop, implement and evaluate the feasibility of a new intervention using a comprehensive tele practice model of screening, diagnosis and rehabilitation of children below 6 years with hearing and speech-language disorders using ICT.

Designs and Method: Currently, we are conducting situational analysis in two districts (Perambalur and Ariyalur, Tamil Nadu) using qualitative methods to understand needs and challenges amongst caregivers of children with disability, public sector professionals, administrators grass root workers, NGO staff in accessing or providing services. The situational analysis will also inform the readiness for the intervention using tele-practice, among the various stakeholders in the community. Parallel to this, we are developing and validating a mobile/tablet-based hearing and speech-language screening device. Later, the intervention (comprehensive tele-practice model*) will be implemented in Perambalur district. The outcomes will be evaluated using mixed methods feasibility study, with comparison to standard practice district (Ariyalur).

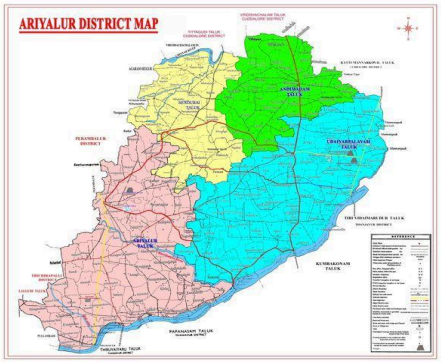
Conclusion: At the end of this project, we expect to have a feasible, effective and a comprehensive tele practice model that will enable early identification and rehabilitation of young children with speech language and hearing disorders.

Impact: Since COVID 19, tele-practice has gained momentum in India. Tele-practice guidelines are framed for various health care disciplines including for Speech, language and hearing sciences. In this context, the results of this study will help to translate a feasible tele-practice based intervention for early identification and rehabilitation of children with hearing and speech language disorders in other districts of Tamil Nadu.

PROJECT SITES



PERAMBALUR



ARIYALUR

MILESTONES OF THE CURRENT PROJECT

2. SMARTPHONE BASED 'SPEECH/SPEECH SPECTRUM IN NOISE' HEARING SCREENING TESTS FOR EARLY IDENTIFICATION OF HEARING LOSS IN CHILDREN (2024-2027)

CO-INVESTIGATORS: **Dr. Anil Prabhakar, Professor,** **Indian Institute of Technology Madras, Chennai**, **Ms. Deepashree Joshi**, **Sri Ramachandra Institute of Higher Education and Research, Chennai**

Funded by: Sree Ramakrishna Paramahamsa Research Grant 2023 in the area of Translational Biomedical Sciences

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Hearing impairment is considered as a silent disability across the world. Unaddressed hearing loss impacts communication and speech, cognition, social isolation, society, economy, education and employment. Therefore, Hearing screening for newborns has become a common practice in many high-income countries. In Low- and middle-income country like India, stake holders are making possible efforts to set up a newborn hearing screening program. Mobile health solutions have been explored in hearing health care services to reduce device costs, decentralize health care, and address the device related gaps that exist in early identification of childhood hearing loss.

Recently we developed (funded by DBT/Wellcome Trust India Alliance), SRESHT – a low cost mHealth based hearing screening device to screen for disabling hearing losses (>40% of hearing loss) in children below 6 years of age in rural districts of Tamil nadu.

Our proposed project through the current grant aims to scale up the SRESHT device to various states of India by developing and validating hearing screening module using ‘Speech/ speech spectrum based stimuli’ in noise in several Indian languages (Telugu, Hindi, Kannada). These modules will have language independent stimuli for children below 3 years of age and language dependent modules for children between 3 and 6 years of age. This project also aims to screen lower degrees of hearing loss (mild degree) in children using SRESHT device’s newly developed hearing screening module. We believe this will support implementation of community level early identification of childhood hearing screening thorugh both public sector and NGOs in India.

OUR RESEARCH COLLABORATORS

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GLIMPSES OF OUR PAST PROJECTS: SINCE 2010

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