

Exploring the Functional Outcomes of Children with Hearing Loss in Singapore

Rebecca Bull, Beth O'Brien, Chong Suet Ling, Lourdes Mary Daniel and Jernice Tan

KEY IMPLICATIONS

- Children with hearing loss (HL) in Singapore are achieving on an academic level similar to their hearing peers, but showed difficulties on tasks requiring accurate perception of spoken words and maintenance of information in memory. They also face challenges in social and emotional abilities, particularly peer relationships, which may result in decreased quality of life.
- Co-enrolment programmes, where students with HL learn together with hearing students in a bilingual (sign and oral language) environment may help to address language, social, and peer interaction needs of students with HL.
- We advocate for the family to also be immersed in a bilingual approach from early in development. This will help to ensure the child has exposure to rich language experiences in the home, and may help to alleviate the stress and communication difficulties reported by parents in the current study.

BACKGROUND

HL is viewed as a disability with multifaceted consequences on child development, including academic and intellectual development, speech and language development, social and emotional development, and physical and motor development. Whilst published research shows

benefits of early identification and intervention of HL for both child and family outcomes, many children with HL still perform more poorly than hearing peers in a range of development outcomes. Initiation of Universal Newborn Hearing Screening (UNHS) in 2002 made a significant contribution to the early identification and intervention of HL in Singapore. However, the long-term outcomes of HL have received comparatively little attention in Singapore, and there has been no evaluation of the impact of early identification and intervention on child outcomes.

FOCUS OF STUDY

The objective of this research was to evaluate the long-term holistic development of children with HL children in Singapore. This study will help in identifying specific functional outcomes for which HL children may require continued support. It will also provide important information on whether the early identification and intervention of HL has a positive impact on outcomes for these children, or whether there are other factors that predict individual differences in long-term outcomes for HL students.

KEY FINDINGS

- Compared to hearing students, a higher proportion of students with HL are delayed in school progression by one or two years. However, PSLE results and secondary

school placement show that HL students are achieving at a level commensurate with their hearing peers.

- Teachers, parents, and HL students all reported difficulties with peer interactions. Students reporting more difficulties also reported having a lower quality of life (lower self-acceptance, less participation, and greater perceived stigma).
- Parents and teachers reported HL students as having difficulties holding information in memory (e.g., when given three things to do, remembers only the first or the last), in planning/organising (e.g., underestimates time needed to finish tasks), in monitoring (e.g., does not check work for mistakes) and in shifting (e.g., has trouble getting used to new situations such as in classes, groups, friends).
- Students with HL performed well on visually-based reading and language tasks e.g., visual word reading and reading comprehension where the text remains available for revisiting, and oral expression of a visually depicted scene. However, tasks that required accurate hearing of orally presented information and holding orally presented information in memory (e.g., listening comprehension, sentence recall) were more difficult for HL students despite them having other requisite skills (e.g., comprehension ability, oral expression) to perform the task.
- Earlier identification or intervention of HL was not associated with better child or family outcomes. Higher severity of HL predicted poorer language/literacy ability, higher self-reported socioemotional difficulties, and poorer quality of life. Higher HL severity was also associated with more parental/family stress, more parent-child communication difficulties, and less satisfaction with their child's outcomes.

SIGNIFICANCE OF FINDINGS

The findings support MOE's recent policy decision to adopt a bilingual (sign and oral) co-enrolment model of

education for students with HL. Both HL and hearing students will learn sign language, allowing HL students access to high quality language input that they might not achieve through oral language, an ability to communicate and interact with their peers, and an opportunity for hearing students to better understand and interact with students with HL. This will hopefully address key difficulties with peer relationships and language skills identified in this study. We advocate for the family to also be immersed in a bilingual approach from early in development. This will help to ensure the child has exposure to rich language experiences in the home, and may help to alleviate the stress and communication difficulties reported by parents in the current study. Students with HL may also benefit from simple changes in the classroom such as the provision of visual cues, written rather than verbal instructions, and smaller units of instruction. It may be necessary to raise teachers' awareness of the support needed for HL students in activities like group discussions or in noisy environments; simple checks are recommended such as ensuring the adequate functioning of FM systems, that children are actually wearing hearing aids, and that children are located in the classroom where they are best able to hear.

PARTICIPANTS

71 students with HL attending mainstream primary and secondary schools.

RESEARCH DESIGN

This was an exploratory study. Students, parents and teachers completed measures and questionnaires that provided information about outcomes in academic ability, social and emotional functioning and well-being, cognitive skills, reading and language, and motor skills. Information regarding the possible predictors of individual differences in outcomes was gathered via a questionnaire completed by the parent.

About the authors

Rebecca BULL and Beth O'BRIEN are with the National Institute of Education, Singapore.

CHONG Suet Ling is with the Ministry of Education, Singapore.

Lourdes Mary DANIEL is with the KK Women's and Children's Hospital, Singapore.

Jernice TAN is with the Republic Polytechnic, Singapore.

Contact Rebecca Bull at rebecca.bull@nie.edu.sg for more information about the project.

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