

Audiological Outcomes of the Sentio System in a Young Paediatric Population

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1 INTRODUCTION

Bone Conduction Hearing Devices (BCHDs) are commonly used in patients with conductive (CHL) or mixed hearing loss and in those with Single-Sided Deafness (SSD), as an alternative to the Contralateral Routing of Signal (CROS) hearing aid.

The **Sentio Ti** is the smallest transcutaneous bone-conduction implant reported to date, and the **Sentio Mini** is the smallest and lightest sound processor currently available.

This multi-centre study evaluates the safety and performance of the Sentio system in children aged 3–11 years. This poster reports **preliminary audiological outcomes** from children implanted at Great Ormond Street Hospital.



Sentio Ti implant

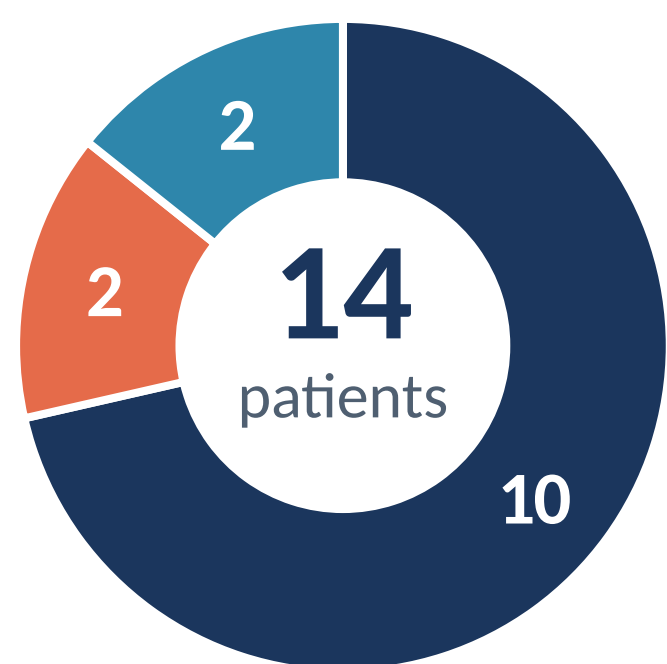


Sentio Mini sound processor

2 MATERIAL AND METHODS

Participants

- BCHD candidates aged 3–11 years (n = 14)



Patient cohort

- Unilateral CHL (n = 10)
- SSD (n = 2)
- Bilateral CHL (n = 2)

Assessments

- Aided and unaided hearing thresholds
- Speech recognition in quiet and in noise, using open-set word lists (Manchester Junior Word List and AB Word List); speech at 65 dB, noise at 60 dB

Test conditions

Unilateral hearing loss: masking noise in the good ear

Single-sided deafness: plug and ear muff on the good ear

Bilateral hearing loss: tested without masking or ear blocking

Questionnaires

- Vanderbilt Fatigue Scale – Child (VFS-C)¹
- Glasgow Children's Benefit Inventory (GCBi)^{2,3}
- Sentio questionnaire

Acknowledgements

We thank Marianne Philipsson, Kia Nohr Iversen and Sara Svensson for their assistance with the Sentio study, and Oticon Medical for sponsorship (ClinicalTrials.gov NCT06976086).

References

- Hornsby BWY, et al. Development and evaluation of pediatric versions of the Vanderbilt Fatigue Scale for children with hearing loss. *J Speech Lang Hear Res* 2022;65(6):2343–2363.
- Kubba H, Swan IR, Gatehouse S. The Glasgow Children's Benefit Inventory: a new instrument for assessing health-related benefit after an intervention. *Ann Otol Rhinol Laryngol* 2004;113(12):980–986.
- Kubba H, Whitmer WM. Exploring the factor structure of the Glasgow Children's Benefit Inventory: new recommendations for reporting results. *Ann Otol Rhinol Laryngol* 2021;130(6):614–622.

3 RESULTS

Pure-tone average (PTA₄)

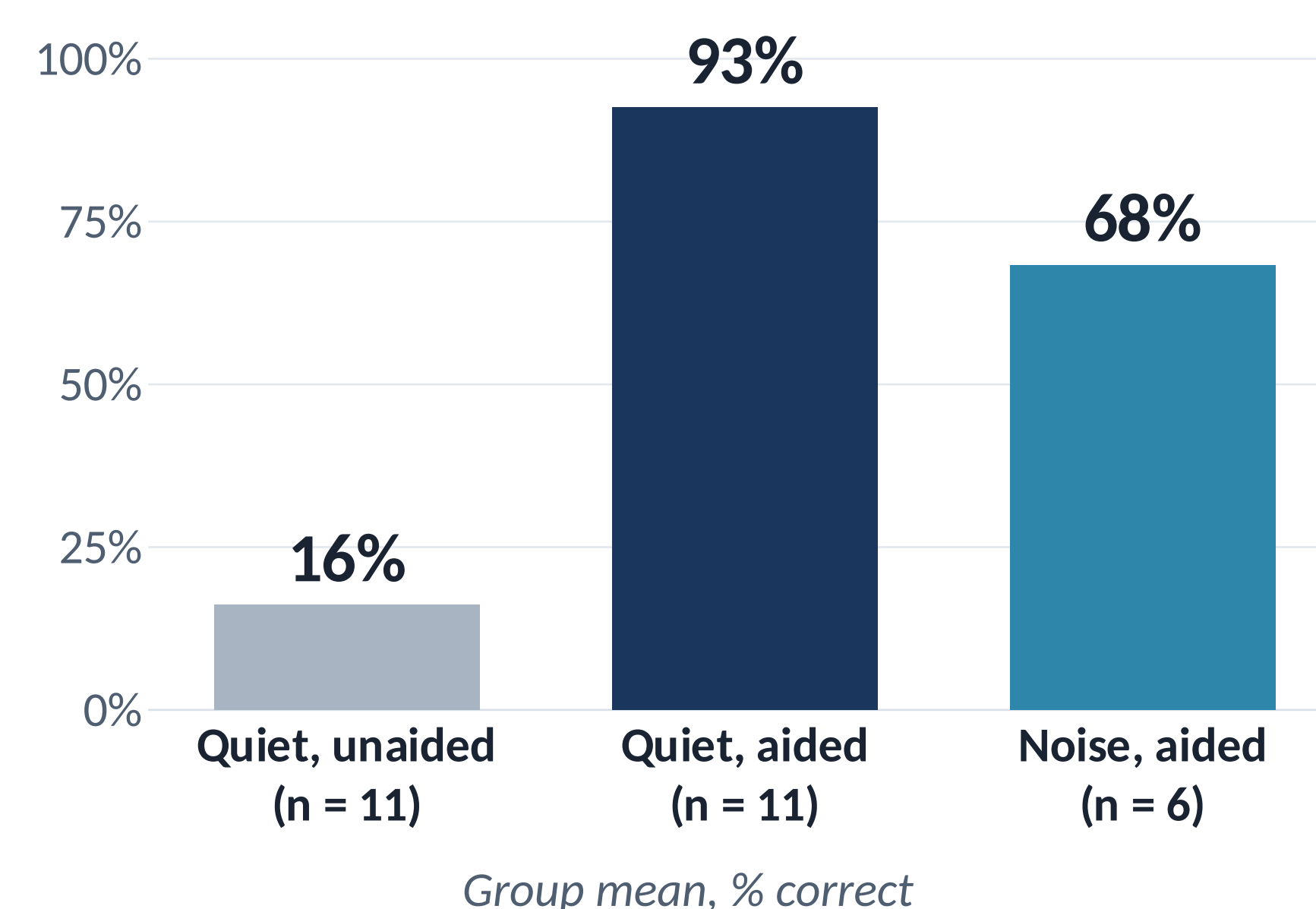
Mean improvement across 14 participants



↓ 35.3 dB improvement

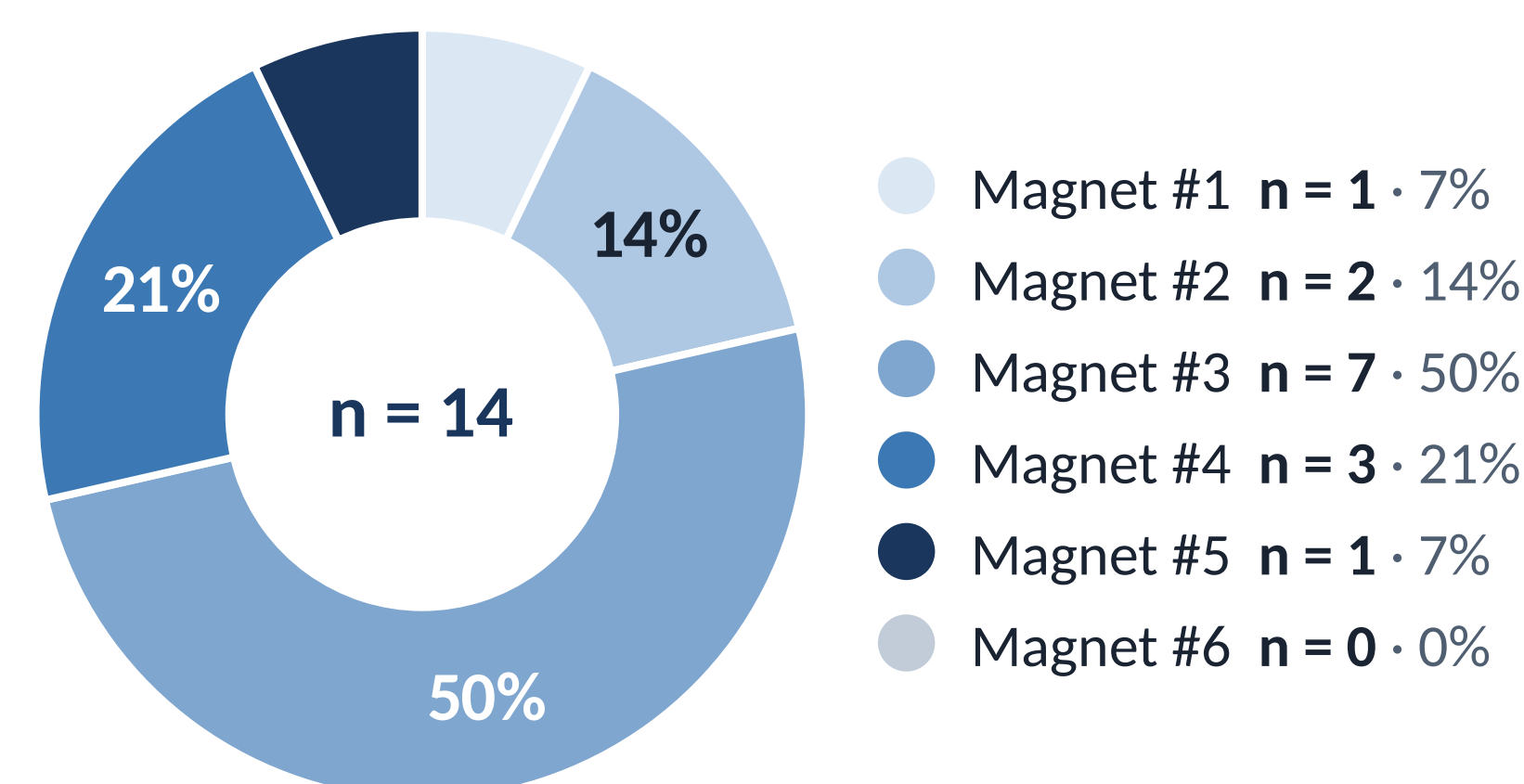
Speech recognition

Improved scores with the Sentio processor



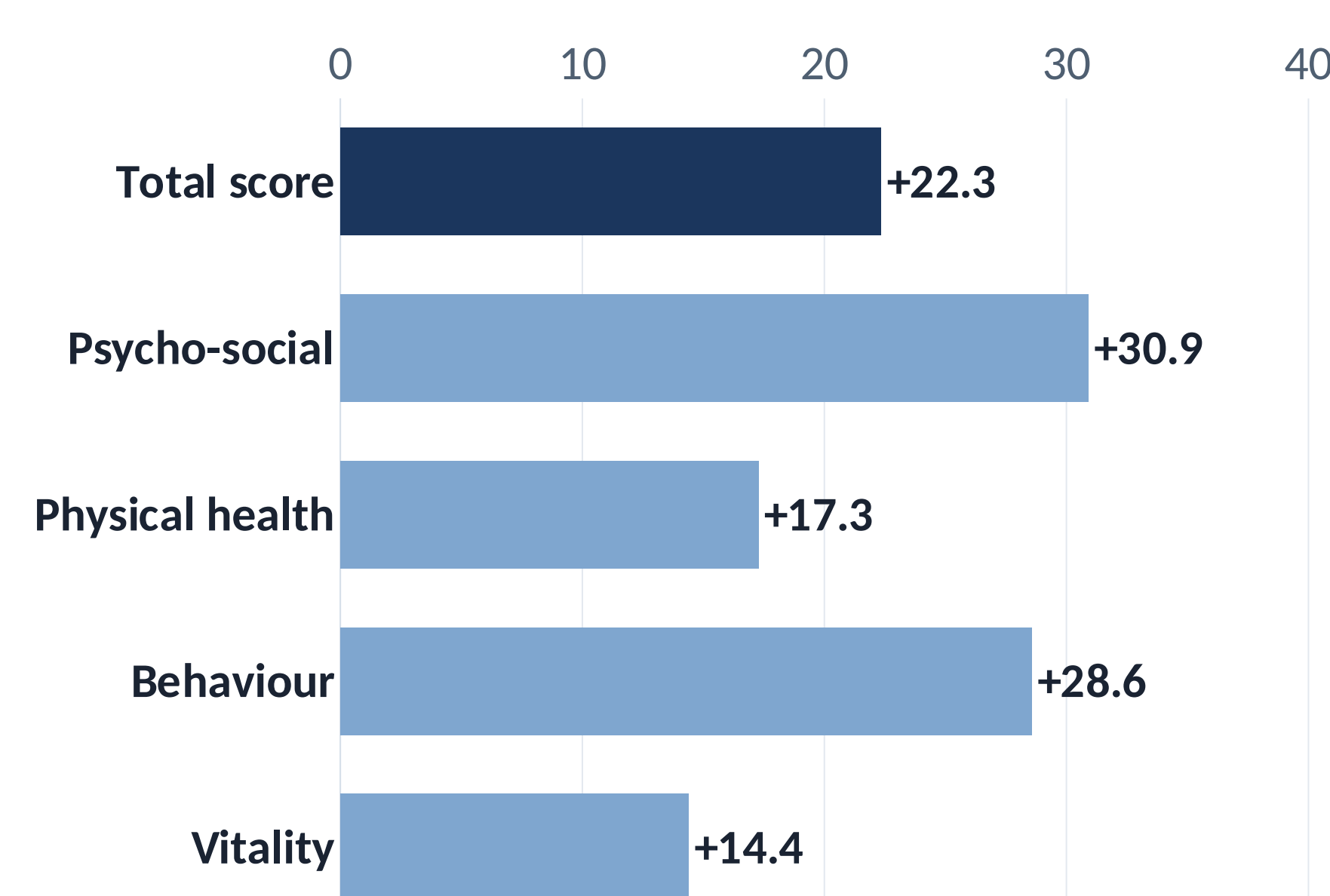
11 participants showed improvement in quiet and 6 participants showed improvement in noise.

Current magnet strength



Glasgow Children's Benefit Inventory

Positive impact on quality of life



Mean scores at 3-month follow-up (n = 11); scores range from –100 to +100, positive scores indicate benefit

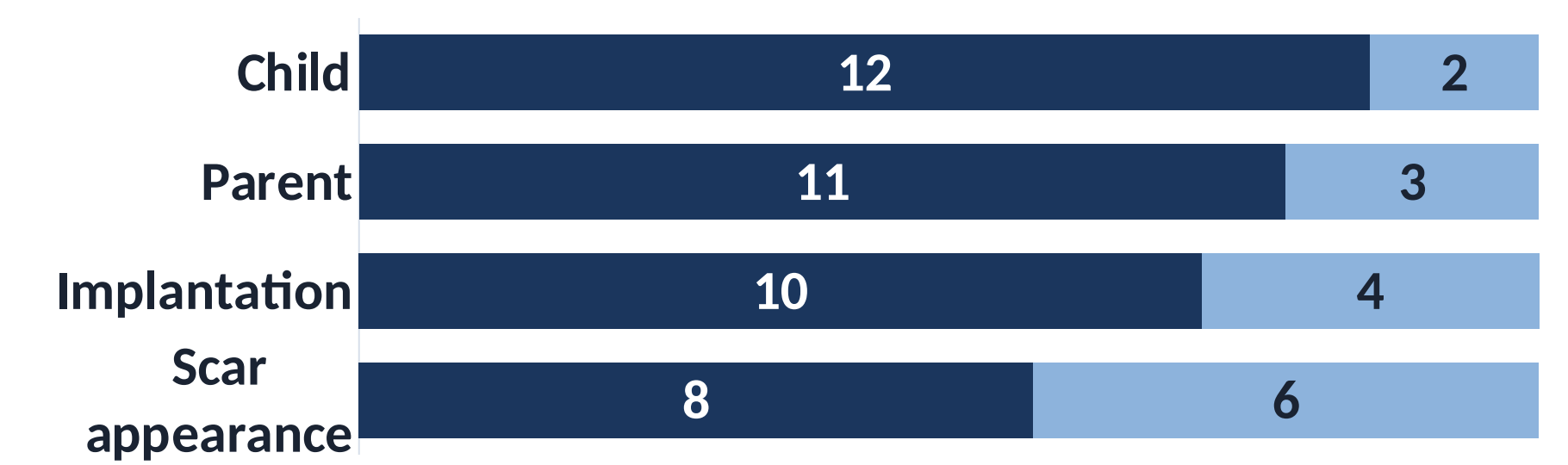
Sentio questionnaire

Satisfaction, wear and retention (n = 14)

Very satisfied

Satisfied

Response options were very satisfied, satisfied, neither satisfied nor dissatisfied, dissatisfied and very dissatisfied; the last three were not chosen by any participant.



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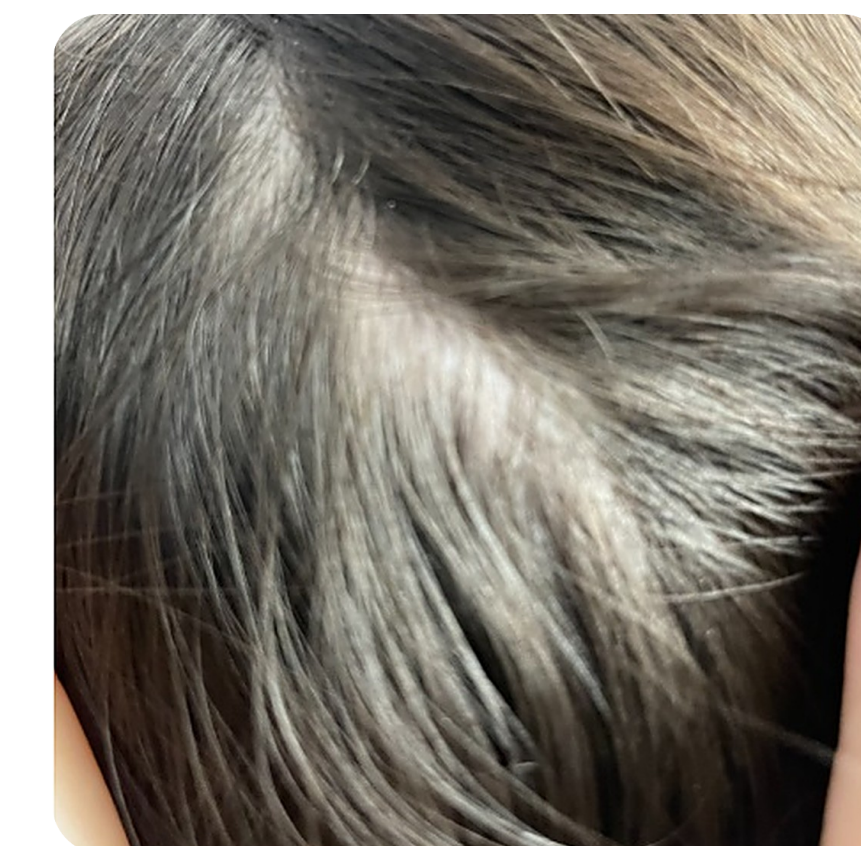
wear it ≥ 8 h a day

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worn always or almost always

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Hearing acoustic feedback never or seldom



Patients' and audiologists' experience

“I hear louder and clearer.” — Patient

“The implant is barely visible under my skin and the processor is comfortable.” — Patient

“Sentio has exceeded our expectations.” — Parent

“Sentio has improved his quality of life in a visible way.” — Parent

“Very secure device and is easy to handle.” — Audiologist

“Fitting was straightforward and easy and no cables are needed.” — Audiologist

4 CONCLUSION

Initial findings indicate that the Sentio system shows **promising hearing rehabilitation and speech outcomes** in young children with conductive or mixed hearing loss, or SSD.

Preliminary results show **improved aided hearing thresholds** and **better speech discrimination in quiet environments**, supporting the suitability of the Sentio system in paediatric patients.