

# Hearing emotions matters - especially in noise

For children, recognising emotions in a speaker's voice is a key to social competency and inclusion. To dive deeper into how our hearing aids help children, we conducted the first-ever study of voice emotion performance in noise. Results show children using Oticon hearing aids in noisy environments recognise voice emotion similar to their hearing peers.



## Emotional nuances of spoken language

Children and teens with hearing loss need the same sense of belonging as their hearing peers - they want to learn, communicate, interact appropriately in different social settings, and feel included. When there are difficulties in the perception of emotion, studies have shown that it may compromise communication and social competency,\* delay the development of empathy,\*\* and even have broader effects on quality of life, such as poorer performance at school and work.\*\*\*

## Recognising voice emotion in noise

Before now, access to voice emotion for children who wear hearing aids has not been investigated in complex, noisy listening environments - precisely the environments that children of all ages experience throughout their day. That's why this study set out to investigate the voice emotion recognition abilities of children and teens with hearing loss in background noise and without the support of facial expressions, and compare them with their age-matched, normal-hearing peers.

\*Shaffer et al., (2009). Intergenerational continuity in parenting quality: the mediating role of social competence. *Developmental psychology*, 45(5), 1227.

\*\*Petersen, A. (2004). Gender, 'Emotional Literacy', and the Future. In *Engendering Emotions* (pp. 125-159). Palgrave Macmillan, London.

\*\*\*Picou, et al., (2018). Hearing, emotion, amplification, research, and training workshop: Current understanding of hearing loss and emotion perception and priorities for future research. *Trends in Hearing*, 22, 2331216518803215.

## Anger, sadness, happiness, fear?

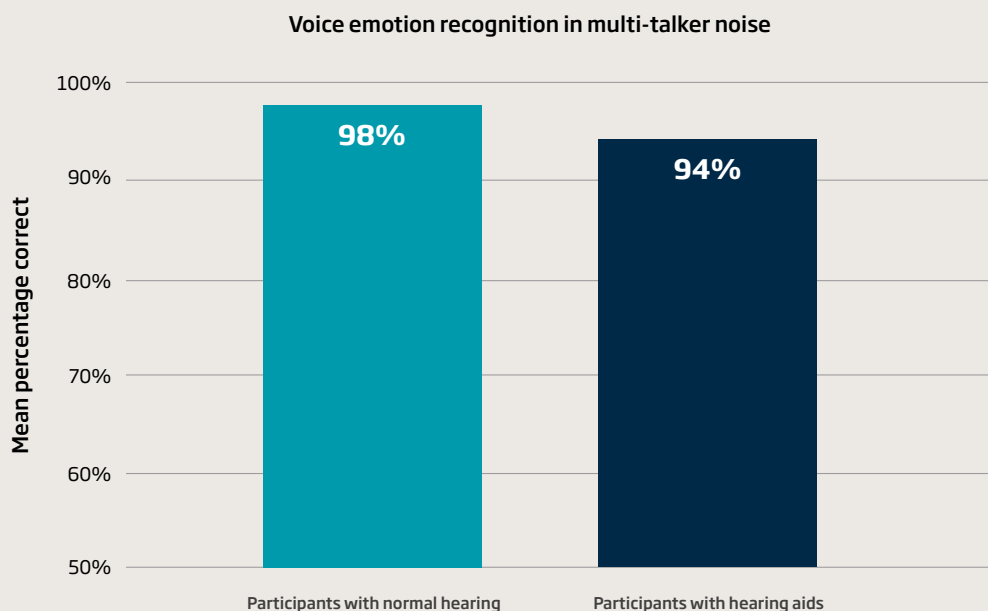
Ten English-speaking children between the ages of 8 and 18 years with mild to moderately severe, permanent, bilateral hearing loss, and 10 children with normal hearing participated in the study.

- The children with hearing loss were fitted with Oticon hearing aids that utilised MoreSound Intelligence (found in Oticon Play PX)
- Using the Toronto Emotional Speech Set (TESS), all 20 children were presented with 25 TESS words with audio only (ruling out facial expression cues) and multi-talker babble from two angles
- Participants were asked to identify whether the words were being portrayed with anger, sadness, happiness, or fear

## Emotions worth hearing

The children who wore the Oticon hearing aids achieved a mean score of 94% correct on the TESS when presented in background noise. This suggests that they were able to recognise emotional nuances of spoken language without the support of facial expressions. The children wearing the Oticon hearing aids also had similar performance in their voice emotion recognition as their age-matched peers with normal hearing (Figure 1).

These results provide new evidence that Oticon Play PX 1 has the potential to provide young hearing aid users with the access they need for important aspects of their development, helping them hear the nuances that foster empathy and feeling socially connected.



*Voice emotion recognition abilities of children with normal hearing and children using Oticon hearing aids*

Read the full whitepaper at [www.oticon.co.nz/play-px](http://www.oticon.co.nz/play-px)

Gordey, D. (2022). Clinical Studies with Oticon Play PX: Exploring New Domains in Paediatric Amplification. Oticon Whitepaper. Oticon Play PX 1. Performance of the hearing devices is dependent on individual circumstances and may not be appropriate for all conditions. Always read the label and follow the instructions.