"Datalogging Analysis in Pediatric Cochlear Implant Users"

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Introduction:

Datalogging represents a powerful tool to help to understand how often assistive listening devices are used and in what types of listening environments. It's an objective measure of great utility for audiologists that provides important information for programming, counseling and travel-shooting. Especially in the pediatric population, the use of this information is very helpful to guide parents and caregivers about the proper use of the devices.

Objective:

To analyze using the datalogging the following situations: 1) the number of daily hours the device is active, 2) the frequency with which the link between the coil and the implant is lost, 3) the hearing experience of the child in relation to the different listening scenes 4) the relationship between these data and the child´s age, the presence of other disabilities and the hearing abilities achieved.

Methods:

Retrospective study conducted at the Cochlear Implants Center "Prof. Diamante", Buenos Aires, Argentina. Datalogging of 40 children CI users with at least 3 months' experience with the N6 sound processor were analyzed. Age range: 1 to 17 years, subdivided into 4 groups (1 to 2,11 years; 3 to 5,11 years; 6 to 11,11 years; 12 to 16,11 years), sample of 10 patients in each age interval. 10% had additional disabilities. 85% had achieved category 6 of speech perception (Geers, 1994).
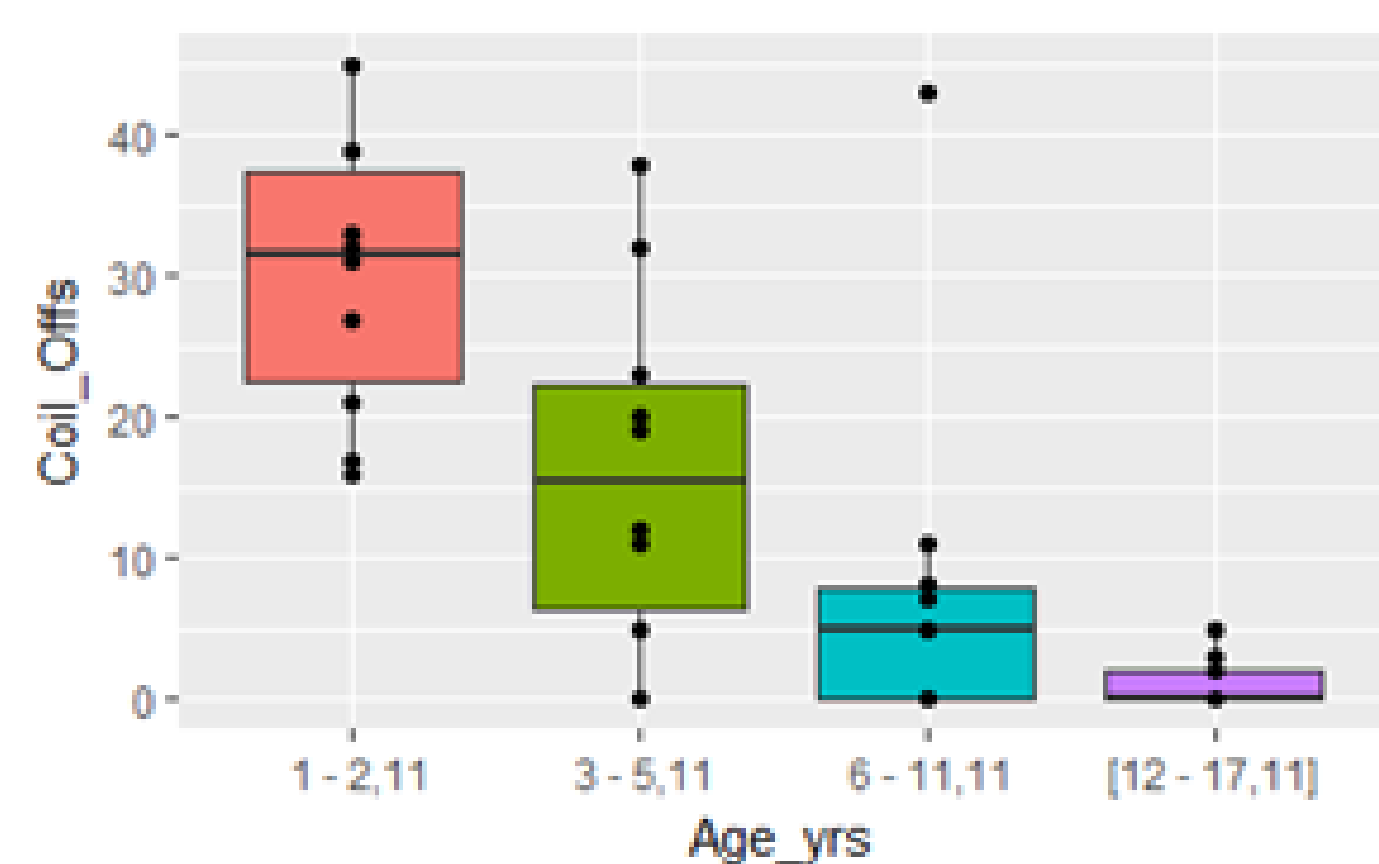
Results:

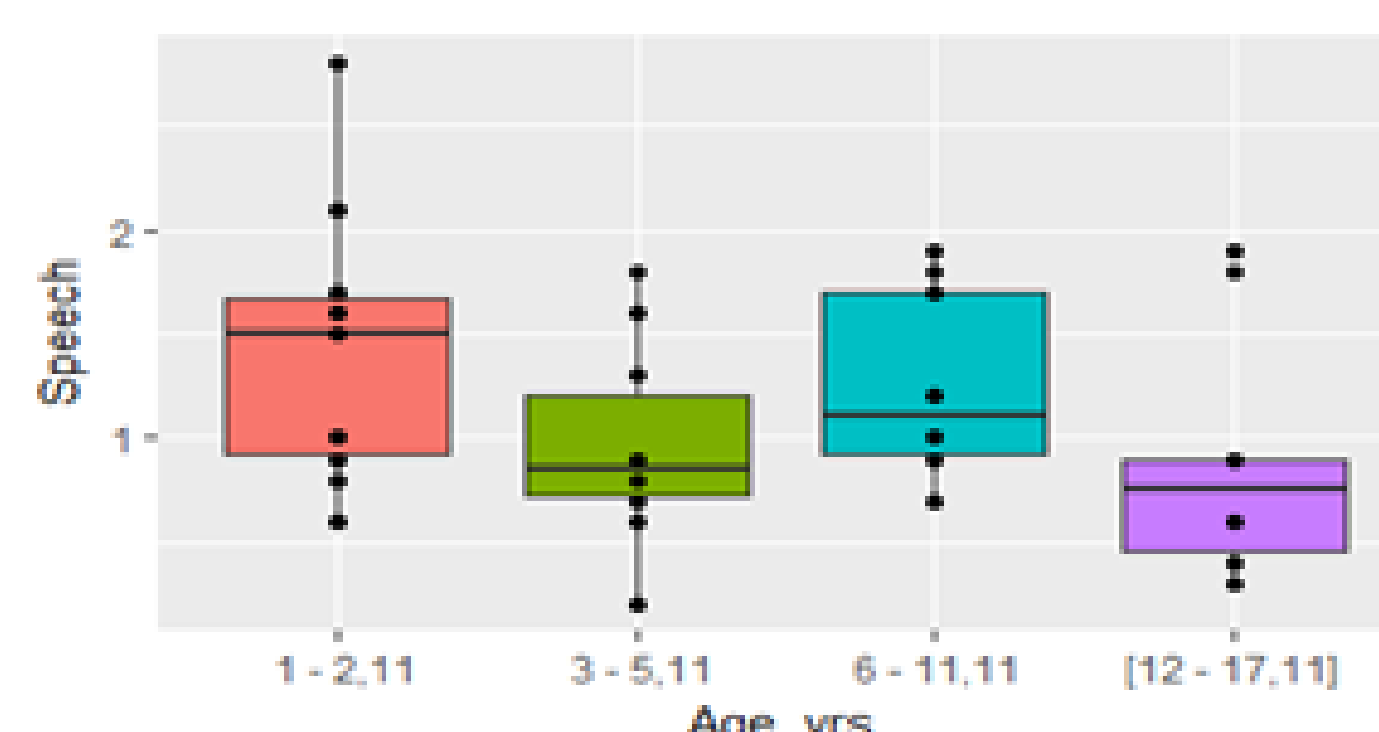**There is a tendency to higher average hours of daily use as the age of the children increases.**
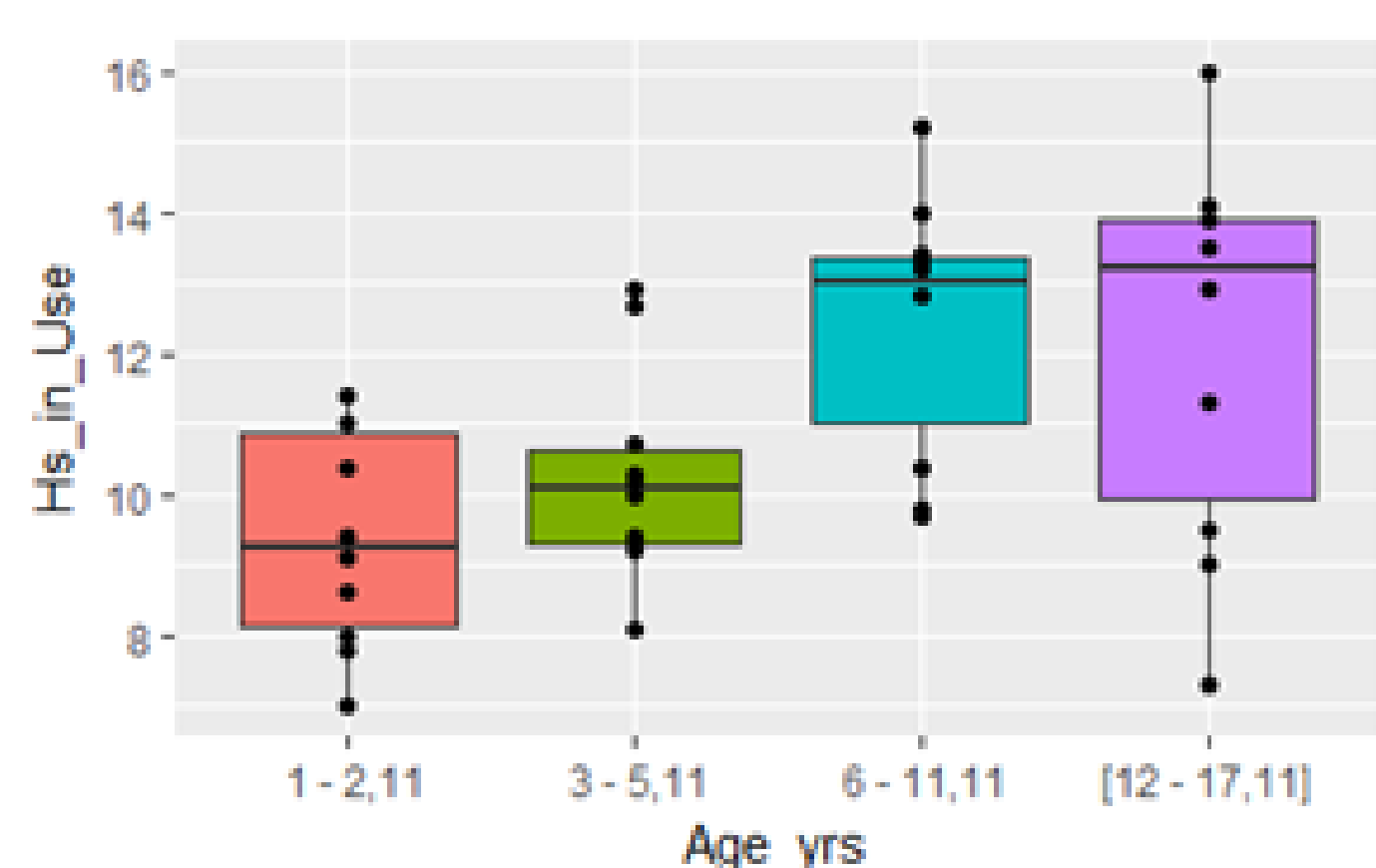
Analysis of Variance Test
P Value 0.002949

The group of younger children are more likely to experience loss of connection between the coil and the implant.
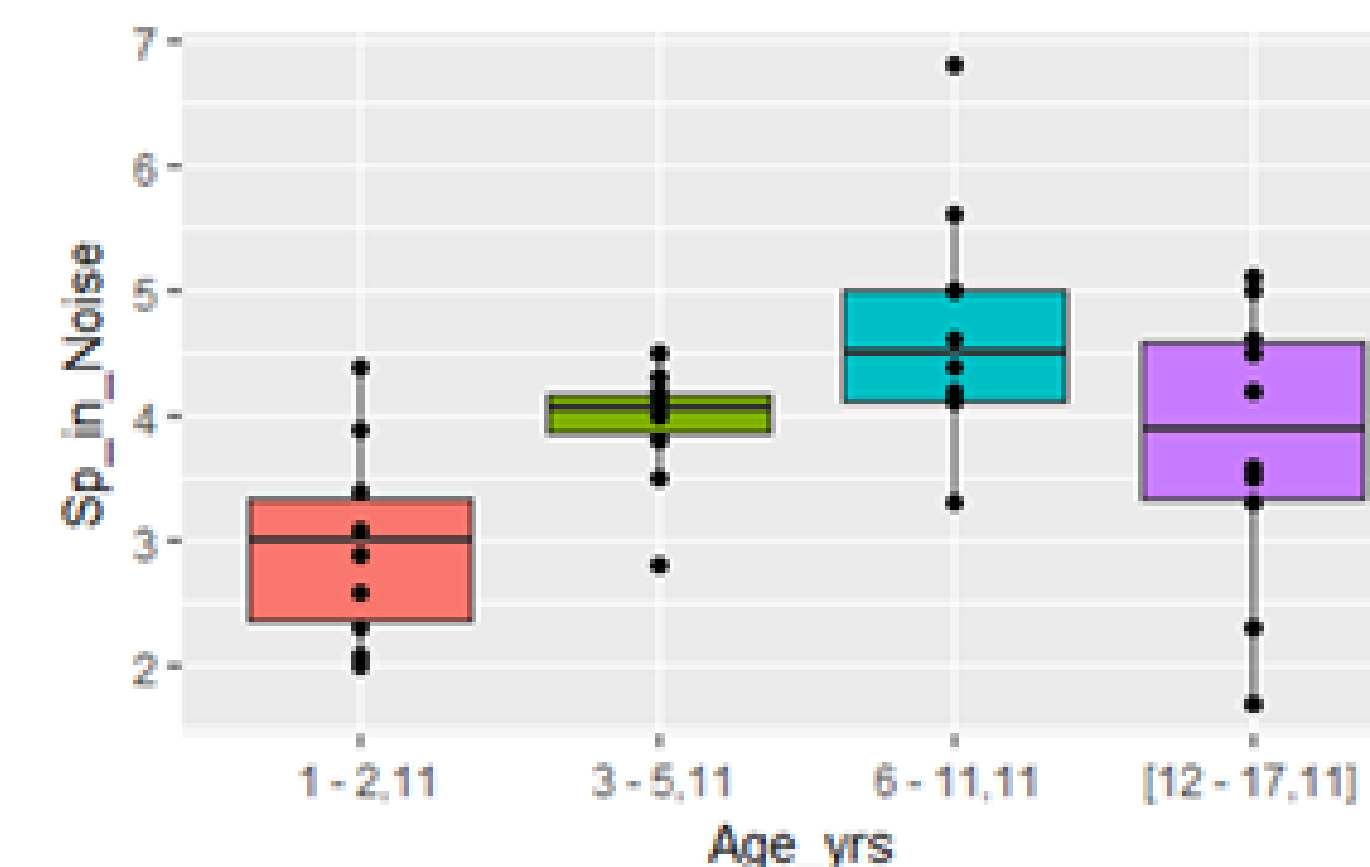

Non parametric Kruskall – Wallis Test
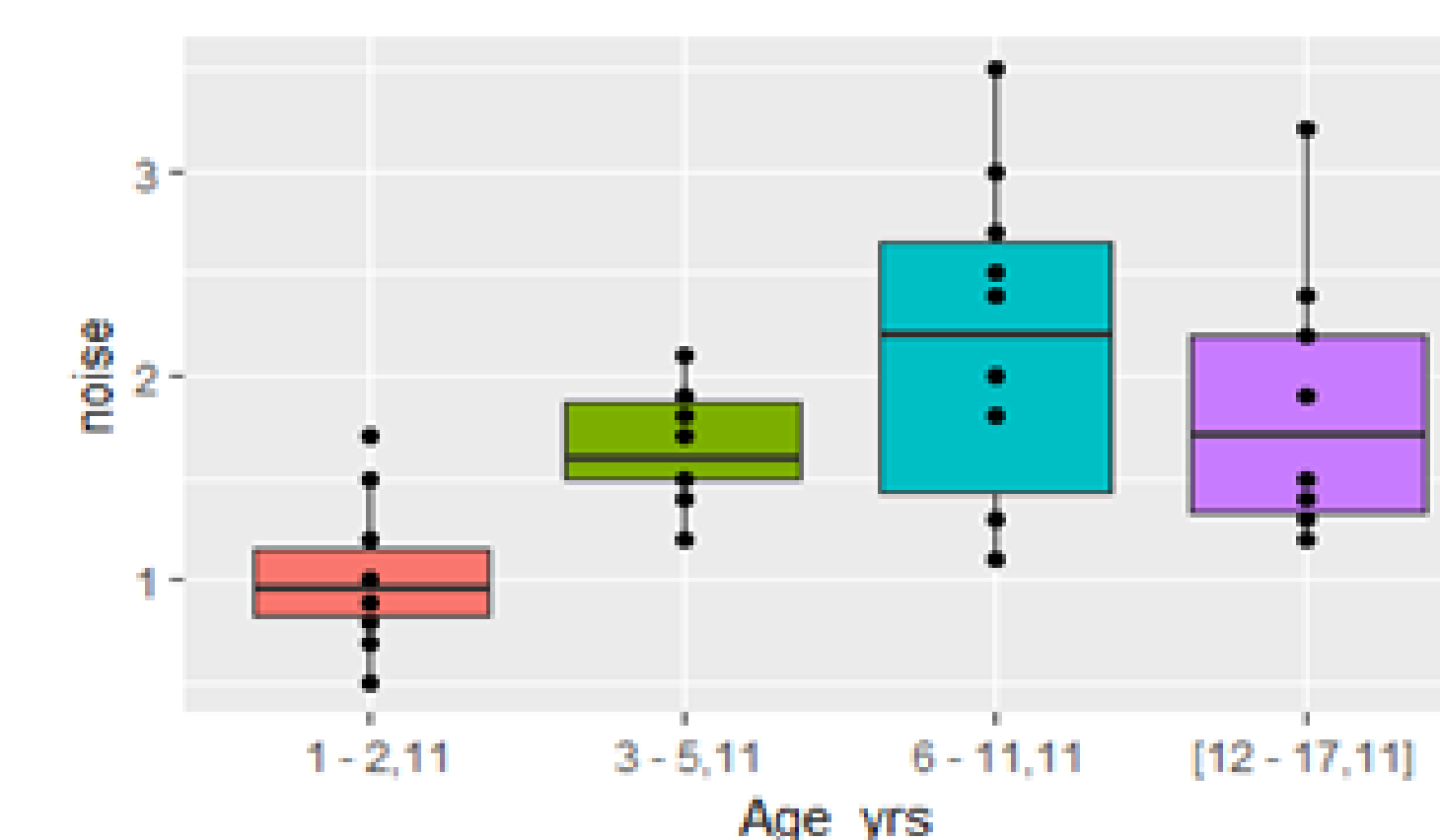P Value 3.463e-05

Analysis of Variance Test
P Value 0.07343

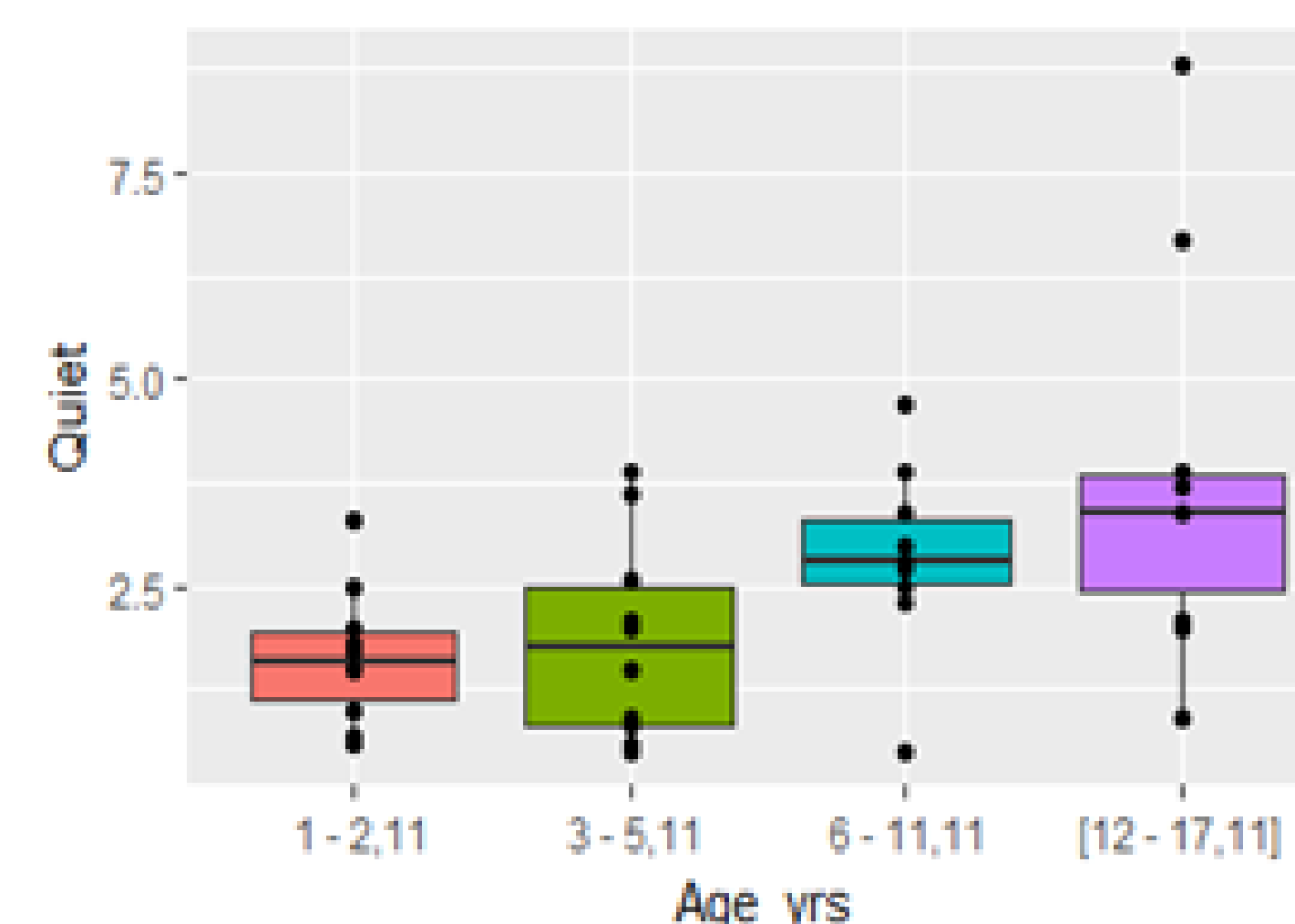**School age children remain a greater average of daily hours in noisy environments.**

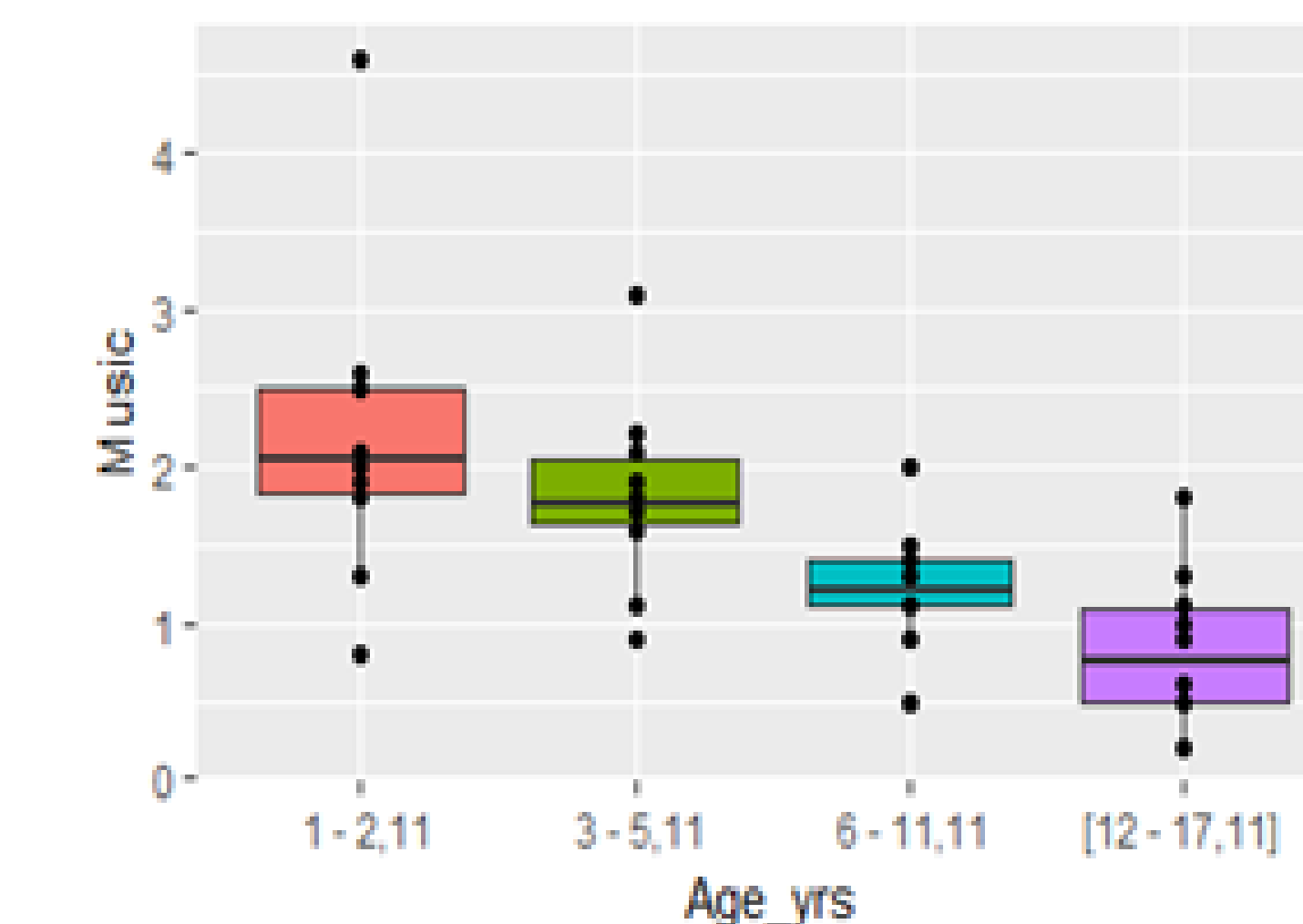Analysis of Variance Test
P Value 0.001133

Non parametric Kruskall – Wallis Test
P Value 0.001204

The older children seem to spend more hours in silence while the younger ones are exposed more time to music.

Non parametric Kruskall – Wallis Test
P Value 0.009179

Non parametric Kruskall – Wallis Test
P Value 0.0004019

P VALUES, CONCLUSIONS OF THE TESTS

The P values of all the test are smaller than 2/1000 (0.002). Except the P value of the Speech Test that result in a signification of an 8%.

Children with Cerebral Palsy tend to use fewer hours per day their sound processors and seem to loose more often the connection between the coil and the implant.

(Due to the small number of subjects the statistical analysis could not be performed)
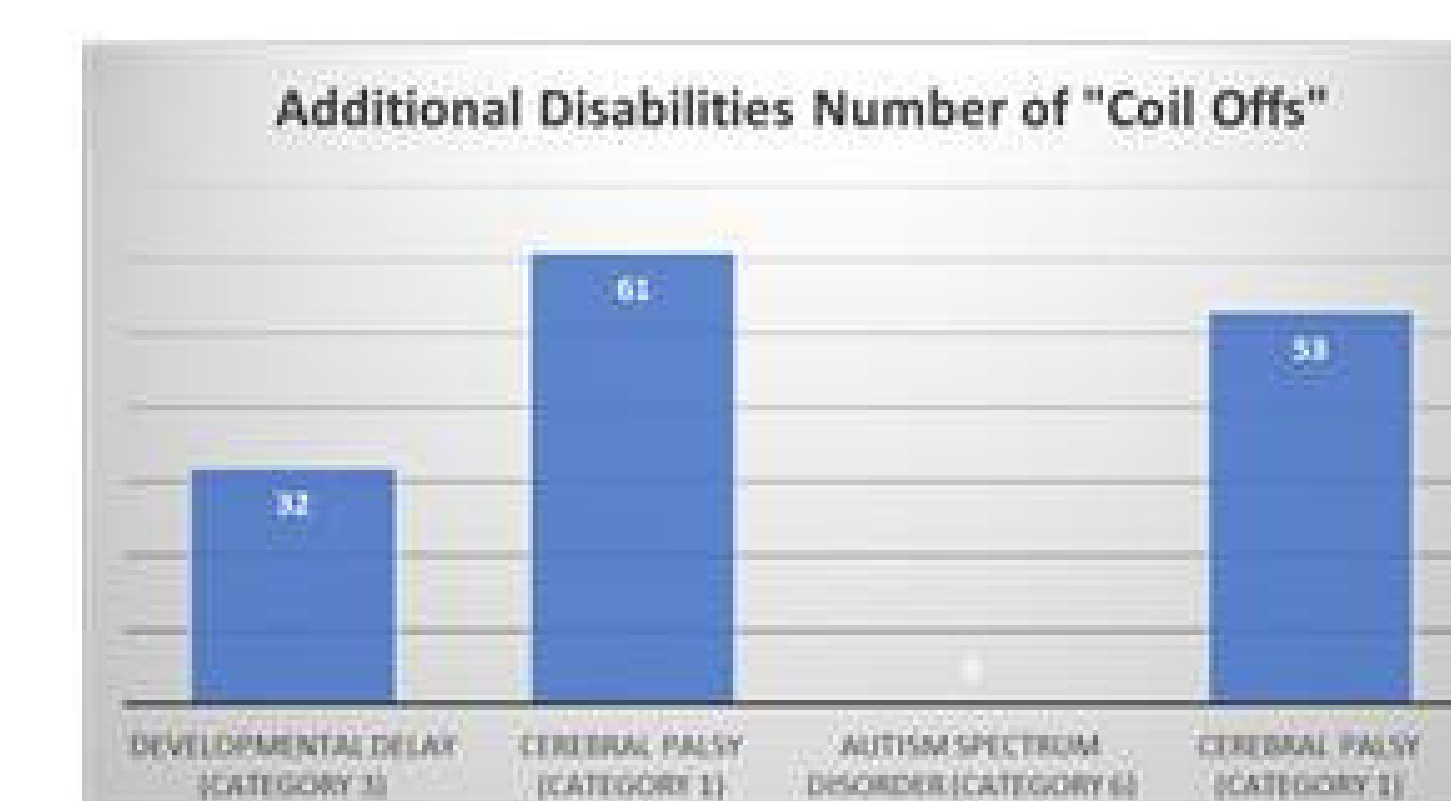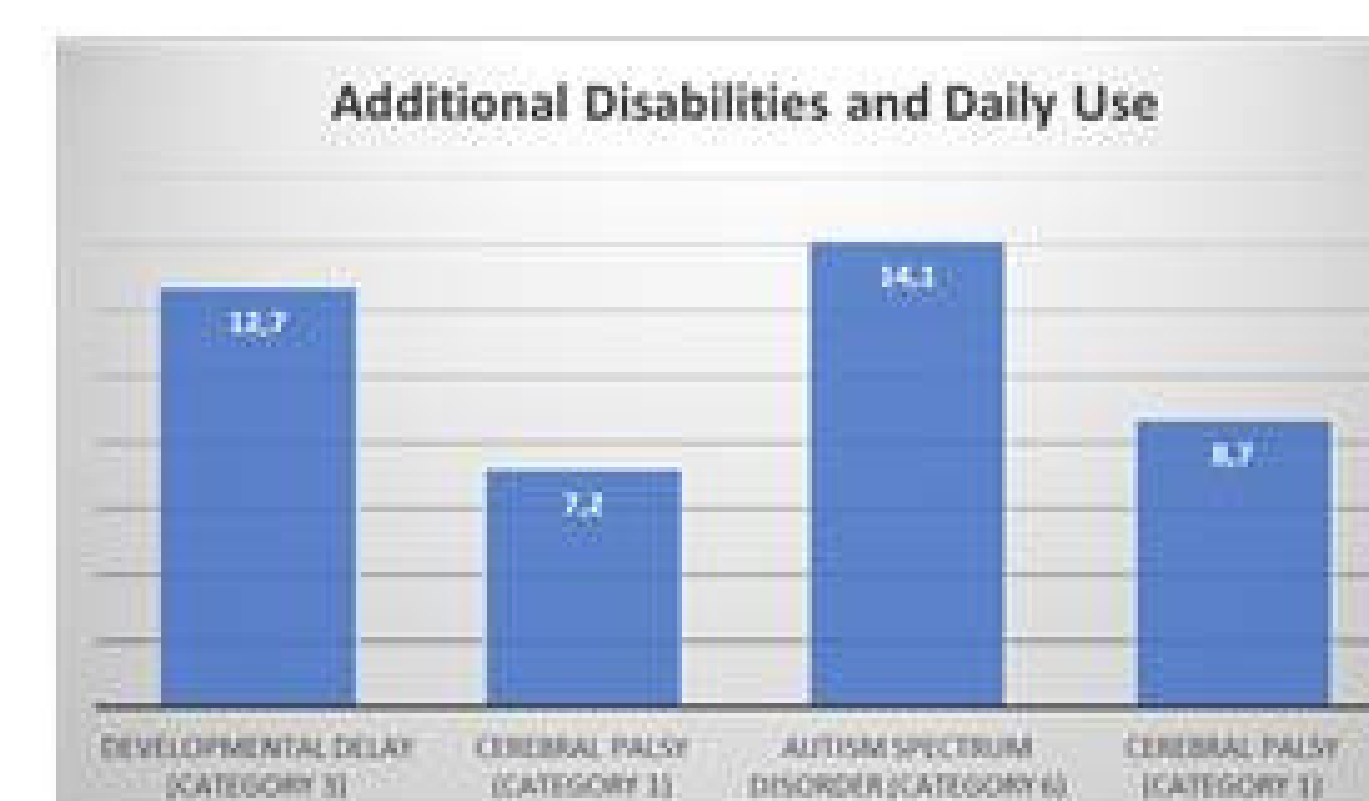
Conclusions:

Using datalogging in sound processors provides accurate and objective information about the use of the device in implanted children. This information is of great help for audiologists both in programing and in helping parents and caregivers to learn about more appropriate use of devices.