Critical Review: How do children with cochlear implants perform in mainstream education compared to normal hearing peers?

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This critical review examines the performance of children with cochlear implants in

mathematics and overall academic performance to assess their performance in mainstream education and compare performance to their normal hearing peers.

The results of the SIFTER indicated that the children with cochlear implants scored well on class behavior and participation subscales but very poorly on communication subscale with 76.5% failure rate. On school examinations children with cochlear implants scored significantly better in mathematics than language (mean scores 62.67% and 49.96% respectively, $p < .01$).

A correlational analysis showed a significantly positive correlation between the number of SIFTER components passed and scores on mathematics, language and overall examination scores. These findings suggest a predictive value for the SIFTER in the area of communication as was suggested by Damen et al (2007) as well as in the area of mathematics and overall examinations.

Mukari et al (2006) compared children with cochlear implants to their normal hearing grade-matched peers by categorizing their percentage scores into three categories: below average, average and above average. They found that nearly half (43.8%) of the children with cochlear implants fell into the below average category for language, performing poorer than their normally hearing peers. They also found that most (87.5%) of the cochlear implanted children were performing at or greater than average in mathematics, as well as or better than their normal hearing peers.

In summary, the results of this study showed poor performance in the area of communication for children with cochlear implants in mainstream education as evidenced by results of the SIFTER, final examinations and academic standing in comparison to their normal hearing peers. These results are consistent with the findings of the previously mentioned studies.

Discussion

All of the reviewed studies examined the performance of children with cochlear implants in mainstream classrooms. The results of all three studies suggested that children with cochlear implants in mainstream classroom showed a deficiency in age-appropriate language and communication skills when compared with normal hearing peers. However, there were a number of limitations to the findings.

First, all studies used small sample sizes without random selection of children with cochlear implants. The studies reviewed had sample sizes of 32, 26 and 20 cochlear implanted children. This can partially be justified due to the currently small population of children with cochlear implants in mainstream education with other common demographics. The results obtained with small sample sizes may not, however, be a true reflection of how all children with cochlear implants perform in mainstream education and may limit the generalizability of the results.

Second, there were limitations in the number and type of measurement tools used to assess overall performance. In two of the studies reviewed, Damen et al. (2006) and Damen et al. (2007) there were only two

the AMP and the SIFTER. Although the SIFTER is a relatively well known screening instrument used to assess educational risk, the AMP, as noted in Damen et al (2006) had only been used in one other study. In addition, both measures used were teacher-rated measures. The questionnaires were completed by a different teacher for each child. This may have an effect on the reliability of the measures. Interrater reliability

as an alternative to, or in combination with, mainstream education.

Further research is required in order to more clearly portray the performance of children with cochlear implants in mainstream classrooms and to understand the appropriateness of mainstreaming children with cochlear implants.

Future studies should be performed with English speaking populations, and larger sample sizes, additional standardized assessment tools, external unbiased raters and/or assessors of performance. Future research should also evaluate methods to assess educational support and whether they can enable children with cochlear implants to achieve the language and communication skills necessary to succeed in mainstream education.

References

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