

Using longitudinal data to evaluate the feasibility of a minimal dataset for diagnosing speech sound disorder in children age 3-6 years,

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Introduction

- Approximately 50,000 children in the UK have primary speech sound disorder (SSD).
- Diagnosis of SSD requires the expertise of a Speech and Language Therapist (SLT) and a speech sample.
- Speech samples and their collection can vary greatly with only one standardised assessment for SSD available in the UK: The Diagnostic Evaluation of Articulation and Phonology (DEAP) (Dodd, et al, 2002)

Aims

1. *Is the DEAP screen a reliable measure of speech sound disorder or delay over time?*
2. *Does the phoneme sample provided by the DEAP Screen provide adequate information regarding the nature of SSD?*
3. *Is the DEAP Screen a contender for a minimum dataset for SSD?*

Methods

- Longitudinal speech and language development data was collected on a cohort of nursery age children (n=369) in an area of social disadvantage.
- 128 children aged 3;00-5;00 were assessed using the DEAP Screen on 6 occasions over a two year period
- Change of status, reliability, validity, sensitivity, specificity and accuracy checks were completed on the DEAP Screen data
- New data were compared to previous data to ascertain change over time

Results

Statistical Analysis

A sensitivity and specificity analysis was used to determine the suitability of using the DEAP Screen as a minimum data set. From the 650 screens analysed:

A true positive result was found on 126 occasions (100%)	A true negative result was found on 487 occasions (93.1%)
A false positive was found on 36 occasions (6.9%)	A false negative was found on zero occasions (0%).

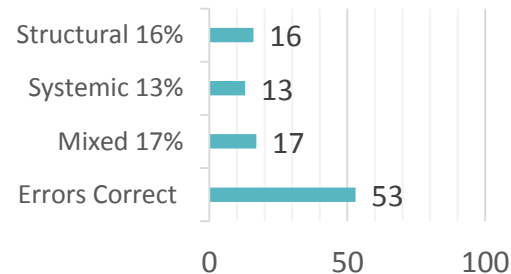
Qualitative Analysis

The DEAP Screens and corresponding DEAP Phonology Assessments were qualitatively analysed for consistency in error patterns found.

- 53% of the DEAP Screens found error patterns consistent with the DEAP phonology Assessments.

Occasions where the DEAP Screen identified one or more structural, systemic or both types of error were recorded.

Table one shows the percentage of occasions the DEAP screen failed to pick up one or more of each error type, and when the errors were correct to the finding of the phonology assessment



Discussion

- The results of the sensitivity and specificity analysis show that the DEAP Screen is highly sensitive when identifying speech errors, with a sensitivity level of 100%. The specificity of the test was also high, at 93%.
- There were no single occasions when the DEAP Screen failed to identify SSD, however the DEAP Screen did incorrectly indicate SSD on 36 occasions, 6.9%. This could result in a child being incorrectly diagnosed with SSD.
- The DEAP Screen found the same errors as the DEAP Phonology Assessment on 53% of occasions.
- Although the DEAP Phonology Assessment identified 47% more structural, systemic or a mixture of both types of error than the DEAP Screen, it was observed that the DEAP Screen had identified the main error types that would typically be considered focus for therapy.
- Therefore where therapy is indicated, the DEAP phonology assessment should still be used for in depth analysis of speech errors and directions for therapy.

Conclusion

The DEAP Screen provides an adequate minimum speech sample in order to diagnose SSD. When used as a minimum speech sample, the DEAP Screen will aid the efficacy of SSD diagnoses, supporting early identification and intervention of speech and language difficulties, which will improve children's social, emotional and educational outcomes.