patient scored highly for the knowledge and use of grammatical structures (*T*-score = 38). He also obtained average scores (*T*-score = 40) on word production, related to phonological awareness.

Executive functions. Scores in response inhibition and motor control (CPT-II) were average (*S* = 42). Performance in perseveration (CPT-II) was good (CS = 30); performance in visual search, attention, and cognitive flexibility was normal (STEN score = 5) in basic tasks and poor in complex tasks (STEN score = 1). In the ENFEN, results were very low (STEN score = 2) in the planning test and extremely low in resistance to interference (STEN score = 1).

Motor skills. Scores for motor skills on the McCarthy Scales of Children's Abilities (MSCA) suggest that his performance is below that expected for his age (CS = 10).

Our results are relevant for the differential characterisation of NS cognitive functioning as well as for the psychological and educational approach to patients with *SOS1* mutations. Further studies on the functional variability of the different mutations associated with NS should be performed.

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A report on reliable differences in the profile of the ACE-III[☆]

Reporte de las diferencias confiables en el perfil del ACE-III

Dear Editor:

In a recent study, Matías-Guiu et al.[1] analysed the psychometric properties of Addenbrooke's Cognitive Examination III (ACE-III) for the diagnosis of dementia. These authors reported high reliability and inter-rater agreement (>0.90), good sensitivity and specificity, and a strong correlation with the Mini—Mental State Examination (MMSE). However, they focus on total ACE-III scores, disregarding subtest scores for attention, memory, fluency, language, and visuospatial abilities. These subtests provide valuable information on the patient's cognitive profile, which is essential for preparing a personalised treatment plan.

In clinical practice, ACE-III subscores vary from patient to patient; the reliability of such differences should therefore be assessed. Matías-Guiu et al. do not evaluate this factor; as a result, the extent to which an ACE-III profile is influenced by measurement error cannot be determined. A mathematical formula has been proposed to address this issue, and can be used to analyse the difference between 2 scores[2]:

$$pd = \frac{SD_1^2 + SD_2^2 - 1SD_1SD_1SD_2p_{12}}{SD_1^2 + SD_2^2 - 2SD_1SD_2p_{12}}$$

In this expression, SD_1, SD_2, ρ_1, and ρ_2 are the standard deviations (SD) and reliability coefficients (normally the α coefficient[3]) of subtests 1 and 2, respectively, and ρ_{12} is the correlation between the 2 subtests. The result ($0 \leq \rho_d \leq 1$) indicates the percentage of variability corresponding to true variance; when the latter is high, it can be concluded that the error of measurement has had no decisive impact on differences.

Matías-Guiu et al. only report SDs for each subtest in one of the tables of the study, and provide no data on their α coefficients or the correlation between subtests. Using fictitious data, below is an example of how complementary analyses may fill this gap. Firstly, to estimate the α coefficient of each subtest, the mean inter-item correlation for

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Table 1 Reliability of the differences between ACE-III subtests.

Subtest	Reliability of differences
Attention-memory	0.442
Attention-fluency	0.459
Attention-language	0.463
Attention-visuospatial	0.535
Memory-fluency	0.519
Memory-language	0.541
Memory-visuospatial	0.606
Fluency-language	0.443
Fluency-visuospatial	0.307
Language-visuospatial	0.580

the total scale (r_{ij}) was calculated using the following formula α (k is the number of items)[4]:

$$\rho = \frac{(k-1)r_{ij}}{1+(k-1)r_{ij}}$$

The α coefficient of each subtest was subsequently calculated, with the assumption that the value of r_{ij} is similar for all subscales. The result shows a low inter-item correlation (mean of 0.128).[5] Based on these data, the α coefficients for attention, memory, fluency, language, and visuospatial abilities were 0.685, 0.762, 0.625, 0.762, and 0.658, respectively. If the data used for calculating the reliability of scores were real, subtest scores could not be used in clinical decision-making due to the magnitude of the reliability coefficients ($\alpha < 0.90$).[6] A correlation of $\rho_{xy} = 0.50$ was assumed, given that correlation coefficients were not reported. Finally, this example used the SDs of the control group of patients aged 65 or older. The potential differences between subtest scores were then calculated using all the data available.

The results shown in Table 1 demonstrate a low reliability in the differences between subscales, discouraging clinical diagnosis based on the analysis of ACE-III profiles. As most of the data used were fictitious, this example only illustrates the method to be followed. Nonetheless, if Matías-Guiu et al. were to perform this analysis using their own data, it would undoubtedly be enlightening with regards to the use of the ACE-III for clinical assessment.

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Conflicts of interest

The author has no conflicts of interest to declare.

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